The Iron Ago

A Review of the Hardware, Iron and Metal Trades.

Published every Thursday Morning by David Williams, No. 83 Reads Street, New York. Entered at the Post Office, New York, as Second-Class Matter.

acquire adds strength to the conviction that there is little likelihood of the processes being successfully conducted out of Japan. In the first place, almost the whole of the many different kinds of lacquers used are the products of trees found only in the Japanese islands, and in the second place the enormous amount of labor bestowed upon the work in its different stages is such as to preclude the work in its different stages is such as to preclude imitation in any country where labor is of other than merely nominal value. Mr. Quin tells his readers that he has had great difficulty in obtaining thoroughly reliable information, owing to the ignorance of the artificers and the subdivision of labor. Notwithstanding these difficulties, however, the report is replete withstanding these difficulties, however, the report is replete with interesting particulars. and as it may be purchased at a low price, we would advise all japanners and others engaged in branches of business in which lacquers, varnishes, &c., are used to procure a copy for perusal and reference.

It appears that the various kinds of lacquers are pro-cured by tapping the lacquer tree (Rhus vernicifera), which is abundant all over the main island, and is also met with in Kiushiu and Shikoku. Spe-cial tools are used for the purpose, and it is said to need a certain "knack" to secure the exuding juice in a pure and proper condition. In its crude state the lacquer is priced at 90 to 100 yen, or, at the present low rate of exchange, equal to between £12 and £13 per tub of about 4 gallons. If the subsequent processes could be successfully carried out it

able property of lacquer. He says: "If crude lacquer, which is originally of the cream, is exposed to the sun for a few days without adding water, it loses its creamy color and becomes quite black. nearly so, but also becomes hinner and transparent. rather translucent, as can be seen when it is smeared on a white board. It will not now, however, dry if applied to an article, even if kept a month or more in the damp press. But if water is mixed with the couer which has thus been posed and become black it once loses the black color and its transparency, and becomes again of a creamy color, though slightly darker, as if some coffee had been added, than at first. After evaporating this water, it can then be used like any ordinary cquer, either alone or in mixtures, and will dry in the damp press, during which process it again turns black." Lacquer will not dry or arden properly in the open air.

t must have a damp, closed atmosphere to do so, other-The fractures of both the upper and lower arms of the strap were found to be short and remain a there are many at work in New York in has been knocked out, and his interiors are larger and lower arms of the strap were found to be short and remain, where practicable, or, in default, red to the Western hemisphere with any person cannot catch them either in descend
going up the feeling is reversed, and one's square. From the position of the wreck it the time of the year and the sort of lacquer known,



eign firms trading in the col-ony. A local manufacturer of grates and such like articles was in favor of the tariff, as also were firms of lampmakers, tin-plate workers, workers in galvanized iron and stamped iron, and tin workers, with the brassfounworkers, with the brassfoun-ders and chandelier manufac-turers. Only one witness sup-ported the retention of the duty on horse-nails, and it transpired that he was the only manufacturer of them in the colony. Two firms of colonial colony. Two firms of colonial iron smelters urged that a duty of about \$10 per ton should be placed on imported pig lead, but, on the other hand, a firm of sheet lead workers opposed the duty unless a similar advantage was obtained by the manufacturers. With respect to the trade materials of plumbers and gasfitters, it was admitted and gasfitters, it was admitted by the colonial manufacturer by the colonial manufacturer that their productions were inferior to those of the Eng-lish, and opinions seem to be divided as to the advantage or disadvantage of retaining the duties. Letters were read from two firms of manufac-turers and importers of chan-deliers respectively, who had deliers respectively, who had had a dispute on the question before the Commission. An English firm importing small brass fittings, was in favor of the remission of the duty on such goods, and opposed to them was an iron safe maker of Melbourne. Several man-ufacturers of agricultural implements were in favor of the tariff, a partner of one of the firms advocating on his own account intercolonial free trade. It was also urged by some that the duty on iron pipe and explosives should be increased, and by an importer of watchmaker's tools that the duty on crucibles should be remitted.



Fig. 1 .- Face of Fracture of Beam Strap of Steamer Kaaterskill, a Little More Than Full Size.

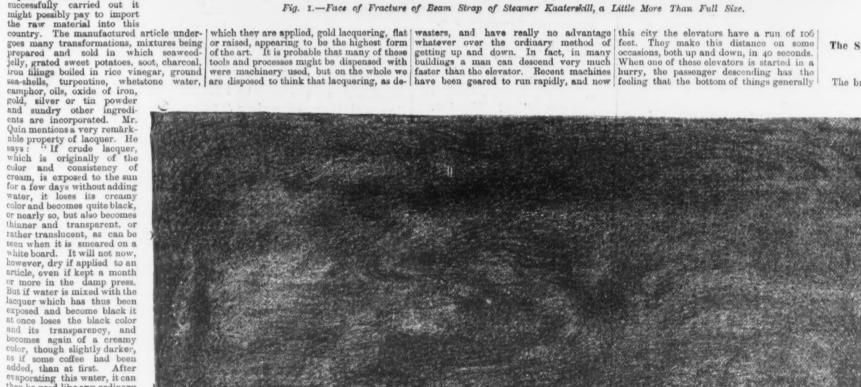


Fig. 2.—Development of Fiber by Treatment with Acids, in Longitudinal Vertical Section through Center of A E, Fig. 3.

THE ACCIDENT TO THE BEAM STRAP OF THE STEAMER KAATERSKILL.

planed planks inside. These are thorself that the same time is put in to dry, the process occupying a bis put in to dry, the process occupying a far time of the western hemisphere with any part to have been driven into the was evident that the failure took place on seconding. These passenger elevators. People find that there is no use in waiting four or five minutes for an elevator cage to rise through the three is no use in waiting four or five minutes for an elevator cage to rise through the there is no use in waiting four or five minutes for an elevator cage to rise through the there is no use in waiting four or five minutes for an elevator cage to rise through the there is no use in waiting four or five minutes for an elevator cage to rise through the there is no use in waiting four or five minutes for an elevator cage to rise through the that there is no use in waiting four or five minutes for an elevator cage to rise through the that there is no use in waiting four or five minutes for an elevator cage to rise through the that the failure took place on body about 20 inches. This is not as bad, the up stroke, and that it first occurred in the there is no use in waiting four or five minutes for an elevator cage to rise through the there is no use in waiting four or five minutes for an elevator cage to rise through the three is no use in waiting four or five minutes for an elevator in the upper area.

The three stories are to have been driven into the was evident that the failure took place on body about 20 inches. This is not as bad, the up stroke, and that it first occurred in the three is no use in waiting four or five minutes for an elevator cage to rise through the control of the water to have been driven into the was evident that the failure took place on body about 20 inches. This is not as bad, the up stroke in the upper area.

The Steamer Kaaterskill Accident.

BY ALBERT F. HILL.

The breaking of the walking-beam strap of the steamer Kaaterskill, on the morning of August 19th, when on her return trip to New York, has probably attracted more attention than

> before.
> The exceedingly narrow and frightful loss of life which the accident presented, the death of one of her deck passengers, caused by the escaping steam, coupled with the fact that at the time of the accident she was going at reduced speed, and under very low steam pressure, very low steam pressure, were circumstances of themselves sufficient to attract attention, and became all the more remarkable from the

any similar accident ever did

entirely new, and had been constructed by firms of high The elucidation of the primary cause of the accident presented, under these circumstances, certainly a very teresting engineering proble The writer visited the disabled steamer shortly after she was towed to the Delamater dock, and before the broken parts of the machinery were

fact that the machinery was

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taken out of her.

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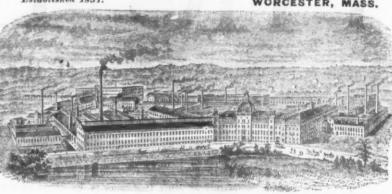
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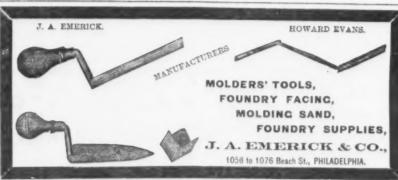
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and was altogether granular.

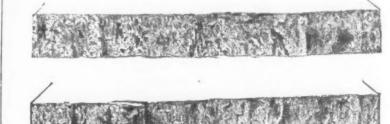
An excellent photograph of the fracture of the upper arm of the strap was obtained, and is reproduced in Fig. 1.

POSSIBLE CAUSES OF FAILURE.

A careful consideration of all the circumees attending the failure, and minute termed, a crystalline appearance. As was

fact that there was no reduction of area at the points of fracture. The appearance of the fractured faces showed no trace of fibro. and was altogether granular.

An excellent photograph of the fracture of this same iron and break it suddenly, especially by what may be termed a shearing shock, or even by the sudden application of a load far in excess of its ultimate strength, and the fracture is sure to have instead of a fibrous, a granular, or as it is sometimes



The Kaaterskill Accident.-Fig. 3.-Faces of Fracture of Test-Piece A, Fig. 9.

inspection of the different parts of the engine, left no doubt that the accident was entirely due to the breaking of the strap, and that no other part of the machinery had given way previously to it. The first question that presented itself then was to see if the breaking of the strap could be accounted for by defective design, i. e., lack of proper dimensions. The section of the strap was 4½ by 6½ inches, except in the parts toward the eyes, where these dimensions gradually increased. The section of the part that broke first was found to be 5½ by 6½ to the Messrs. Fletcher, the short part,



Fig. 4 .- Faces of Fracture of Test-Piece B, Fig. 9.



Fig. 5.-Faces of Fracture of Test-Piece C, Fig. 9.

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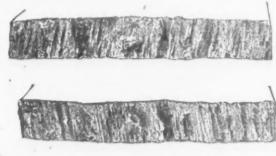


Fig. 6 .- Faces of Fracture of Test-Piece D, Fig. 11.

that a thorough and searching investigation of the iron in the strap was the first thing in order.

THE MATERIAL MUST TELL ITS OWN STORY.

It is always best, in an investigation of this kind, to start out with no preconceived theories. The experimenter may safely trust to the material to tell its own story—and it is simply his business to see that he gets the whole story out of it. To the experimenced aye the appearance of the fracture is a tolerably sure criterion of the fracture.

As will be seen, the line of the break of the pieces A, B and C of the first plate is through the metal. Nevertheless, the fact must not

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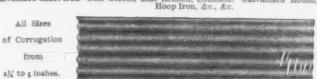
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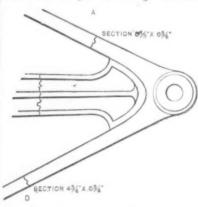
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The Kaaterskill Accident .- Fig. 7 .- Fractured End of Beam-Strap.

strength of only 21,960 pounds per square inch for A, B and C, as against 35,735 pounds in D, E and F. The line of break in these latter specimens started again through the middle, but in F became deviated, probably in consequence of both a slight fire-check



Fig. 8.—Perspective View of End A, Fig. 7, after Removal of Fractured Face.

and also of the steely spot mentioned before as having been brought out by the acid. The difference in the resistance of the plates to vertical and horizontal cross strains was too NEW AND OLD RAILS, Spiegeleisen Iron Ores well defined to pass without notice. In order, therefore, to see whether or not similar re-

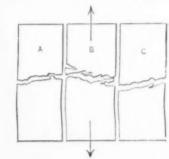


Fig. 9 .- Test Pieces and Line of Break Developed in Plate next to Fracture under Transverse Pull.

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Fig. 10.-Top View of Part A E, Fig. 7, of Strap, showing Test Sections taken out.

Pig, Muck and Bar Iron, Scrap, Etc. given in Table II. Again, we find the resisttance to vertical cross-strain considerably less than to horizontal cross-strain, only here the difference in the resistance is somewhat

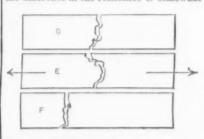


Fig. 11 .- Test Pieces and Line of Break in Second Plate from Break

less, probably because these latter plates were not taken quite so close to the fracture, and hence the fibers had not been so much opened by the rupture of the strap. Since

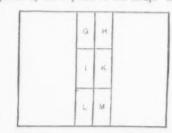
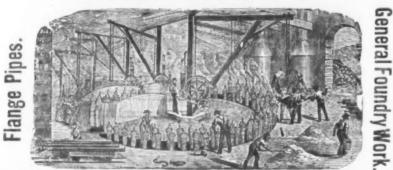


Fig. 12.—End View of Longitudinal Pieces Cut Out of A E, Fig. 7.

the principal object of these plate tests was to find out if the complete opening and separation of the fibers, transversely, would develop any traces of bad scrap or insuffi-ciently worked iron, no record as to effection imit was taken. Moreover, the superficial

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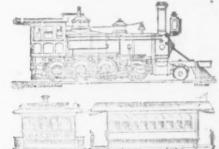
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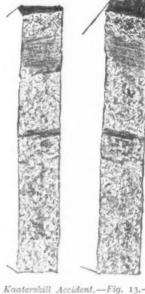
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observations that were taken proved, as was anticipated from the proximity of the specimens to the fracture, that the elastic limit very nearly coincided with the ultimate strength.

TENSILE TESTS.

Following these plate tests a series of tensile tests was made. For this purpose a strip



The Kaaterskill Accident .- Fig. 13. - Faces of Fracture of Test-Piece F, Fig. 11.



Fig. 14.-Faces of Fracture of Test-Piece E. Fig. II.

The character of the fracture, in conjunction with the numerical test results, shows upper arm of the strap, as shown in Figs. 8, 10 and 12. This strip was cut up into six pieces marked G, H, I, K, L, M. Each piece was then turned down in the lathe to 36 inch diameter.

TABLE I.-TESTS OF SECTIONS CUT CLOSE TO FRACTURE FROM UPPER ARM OF BEAM STRAP OF STEAMER KAATERSELL.

	Discounting	Area	Breaking los	ad, in pounds	Fracture.—Per cent.	Pamaula
Mark.	Dimensions.	in square inches.	Of section.	Per sq. inch.	racture,—rer cente.	Remarks.
A	2 c8 × .257 × 5.30 2.06 × .258 × 5.30 2.04 × .257 × 5.30	.53456 53148 53148 53448 53448 53448	10,120 0 P P P P P P P P P P P P P P P P P P	18,931 21,355 P. 18,931 P. 18	Fibrous confirmation of Granular confirmation of Grilar in one spot. Fibrous 85 Fibrous 50 Granular 50	Torn apart vertically across the grain, as shown in Fig. 5.
D E	1.583 × .25 × 6.75 1.522 × .253 × 6.75 1.665 × .253 × 6.75	-39575 000 -38507 average	14,315 13,320 15,370	36,121 35,735 AVEI 36,487 82 82 82 82 82 82 82 82 82 82 82 82 82	Granular. 5 Fibrous 95 Granular 10 Fibrous 90 Granular 90 Granular 90 Imperfect weld	Torn apart horizontal- ly across grain, as shown in Fig. 7.

for a length of about 3 inches in the middle.

The cylindrical part of these test pieces was connected with its square ends by long and easy fillets. These six pieces, representing top, core and bottom of the center of the strap, were broken under tensile strain, with the results shown in Table III. The photo-



Figs. 15 and 16 .- Faces of Fractures G andH, Fig. 12.

Figs. 17 and 18. - Faces of Fractures I and K, Fig. 12.

graphs of the fractures are shown in Figs. 15, 16, 17, 18, 19 and 20.

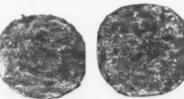
FEATURES OF THE RESULTS.

The most striking features of the results in Table III are the nearness of the elastic limit to the ultimate strength, the good percentages of clongation and reduction of area ob-

TABLE II.—TESTS OF SECTIONS CUT CLOSE TO FRAUTURE FROM LOWER ARM OF BEAM STRAP OF STEAMER KAATERBEILL.

		Area	Breaking lo	ad, in pounds	Fracture.	Remarks.
Mark.	Dimensions.	in square inches.	Of section.	Persq.inch.	2 0 100 7 100 701	2000141 202
B ₁	2,06 × .236 × 4.5 2.01 × .259 × 4.5 2.04 × .256 × 4.5	.52736 .52059 .52224	16,320 13,380 15,050	30,946 3,000 23,780 8 4 2 28,818 9 9 9	No flaw in any of the specimens. Frac- tures average 70 per cent fibrous and 30 per cent. granular.	Torn apar vertically across the grain, sim ilar to what is shown in Fig. 5.
B ₄ B ₅		.3547¥ 34 .00 .33c92 84 .35918 79	12,500 mm m	35,240 33,938 34,105 37	No flaw in any of the specimens. Frac- tures average 70 per cent. fibrous and 30 per cent. granular.	Torn apare horizontal- ly across grain, sim- tlar to what is shown in Fig. 7.

tained, and the marked difference between the character of the fractures of the outside pieces and of the core pieces. The high figures obtained for elastic limit and ultimate strength are unquestionably due, in the first place, to the raising of both the elastic limit show best correctly as the core-pieces show best correctly as the core-pieces.



Figs. 19 and 20.—Faces of Fractures L and of the material, &c. M. Fig. 12.

strength are unquestionably due, in the first place, to the raising of both the elastic limit show hest, or rather strongest, is easily explained on the ground that those pieces were planed on both sides, and therefore free from hammer-checks and other irregularities, thus hammer-checks and other irregularities, thus having the full benefit of their cross-section, which, of course, could not be the case in the outside pieces, which were cut only on one side, and went into the draw-heads just as they were taken from the beam-strap. But here also the elongations and classification of the fractures form a sufficient basis to come to a correct conclusion as to the quality of the material.

CONCLUSIONS.

and ultimate strength which invaribly follows rupture, and, in the next place, to the smallness of the specimens tested and their careful preparation in lathe and planer, by which the full benefit of the entire cross-secular in the test place to the strap under the allowed maximum steam pressure, could not possibly have been confined strictly to the plane of the fracture, and traces of it would have had to be found in the test places.

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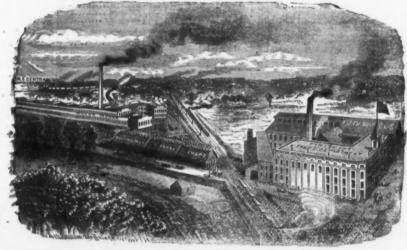
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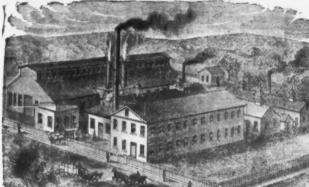


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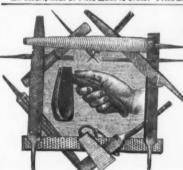


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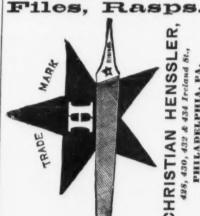
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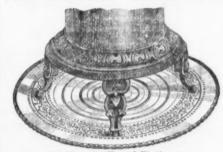
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of the breas. It would have been shenomenal indeed, if the treatment with acids, microscopic examination, and breaking under cross-strains in both directions—a rather severe cross-examna. of the witness—besides the longitudinal tensile tests made here and at the Watertown Arsenal, should all have failed to bring out whatever imper-

TABLE III.-RESULTS OF TENSIONAL TESTS MADE OF SIX PIECES CUT VERTICALLY OUT OF THE LONGI-TUDINAL CENTER SECTION OF UPPER ARM OF BEAM STRAP OF STEAMER KAATERSKILL, PIECES TAKEN FROM ADJOINING THE FRACTURE.

Mark.	ength.	ged length.	Diameter Inches.	Area.	Load in sq. in tion,	lbs, per . of sec- it	gatio	of frac-	er cent.	Remarks.
-	7	Cinng	Die.	7	Elastic limit.	Rup're.	Per	Diam.	Reduc	
G H	out 18 in.	inches.	.630	.31272	36,134 28,455	49.917 53,146 45,494	16.3	-475 -545 -486	41	Fracture good, fibrous, o \$ fibrous: to \$ granular, Opened out lengthwise, showing imperfect welding, fibrous.
L M		6.00	.628	.30974 .30974 .30679	28 070	48,530 40,652 45,307	15.3	· 577 · 480 · 555	42	Fracture bad, short, all granular. Fracture fine, silky, all fibrous, Fracture good, fibrous but not silky.

Average elastic limit per square inch. 30.64: lbs. Average ultimate strength per square inch, 348 lbs.

TABLE IV .- SYNOPSIS OF TESTS MADE AT WATERTOWN ARSENAL, MASS., OF PIECES OF BEAM STRAP OF STEAME. KAATERSKILL.

fections of workmanship or material might have entered into the beam-strap.

The testresults, the appearances of the fractures, the longitudinal development of the fiber in the center of the beam by acid, Fig. 2. all tend to show that the grade of the scrap used in the piles was above the average, that the heating had been very uniform, only few fire-checks being discernible in the fractures, and that the material had been well worked under the hammer. This, taken in connection with the large effective section of the strap, leaves no room for any other conclusion than that the strap broke from the effects of a shock, the force of which was fur

Table IV.—Synopsis of Tests Made at Watertown Arseral, Mass., of Pieces of Bean Strap of

Number.	Length. Inches.	Gauged length. Inches.	Width.	Thickness.	Sect al area.	Percentage of elongation	Fer cent.	Load applied	Lbs. per sq. inch.	Elastic limit,	Crassification of fracture.
1 2 3 4 5 0	Abt. 52 52 52 52 52 52	20 20 20 20 20 20 20	4.80 4.80 4.82 4.75 4.75 4.75	1.88 1.74 1.97 2.07 1.07 1.74	9.08 8.35 9.5 9.83 7.93 8.25	3.7 10	5.8	370,200 125,500 383,000 371,500 338,000 281,000	41,042 18,980 40,320 37,790 42,620 34,020	31,170 25,750 26,320 26,320 26,450 28,450	Granular, Granular from fine to coarse. Fibrous, Granular, 90 %. Fibrous, 10 %. Fibrous, Fibrous, 80 %. Granular, 10 %.

Nos. 1, 2, 3 were part of top of beam which broke first. Area, 5% x 6½. Average strength per quare inch = 40,114 lbs. Average elastic limit per square inch = 27,747 lbs.

Nos. 4, 5, 0 were part of bottom member of strap. Average strength per square inch, 38,143 lbs. Average elastic limit per square inch, 27,973 lbs. Average estrength per square inch of 1, 2, 3, 4, 5 and 6 = 27,860 lbs.

in excess of any strain the steam pressure could have brought upon it. What this shock was, how it was occasioned, &c., are questions which do not come within the prov-

The studies still continued at Terren are now being directed to two points in the process: 1, the manufacture of large castings; 2, the methods of annealing and tempering to be applied to the metal, in order to give it all the mechanical properties corresponding to its chemical composition. The and in view is the substitution of steel f cast iron in all pieces of mechanical struction. But the final solution of problem is still a long way off. The production of castings of any form and of any demensions in steel of a well-determined chemical control of the control ical composition, combining the resistan and rigidity of steel with the smooth surfa and homogeneity of iron castings, is a vercomplicated problem, and one which presen
material difficulties of more than one kin
The last progressive step made at Terrenoi
is worthy of notice — An engineering firm Paris required some cylinders of cast steel, having a diameter of 6 feet 7 inches and a hight of rather more than the diameter, with a uniform thickness of metal of 1.97 inches. These cylinders were to support an internal hydraulic pressure of 45 atmospheres, without showing any sign of percolation. The annealed metal was to have a minimum resistance of 63,500 pounds per square inch, and a minimum extension of 5 per cent. Of these cylinders six have al-ready been cast. The external surfaces of ing, took a very fine polish, even at the gits, and were free from any defects. The metal is cast in molds of loam, pierced with numer-

External	dia	ma	nt.m	ю										Inches.
TAME OF SHIELD	CLASS	EAR	- NC			0					٠			- 91-7
Internal	mail	ne	ter											y 08
Thickness	lo i	m	eta	l.										2.27
Hight,														10.43

shock was, how it was occasioned, questions which do not come within the province of this article, as the writer simply proposed at present to lay before his readers the results of his examination of the iron in the strap.

Notes on the Manufacture of Solid Steel Castings.*

At Terren ire

Nos.	In lbs. p	er square	ation.	cent.	blows.	ion in
×	Elastic limit.	Ultimate strength.	Elongation. Per cent.	Contraction Per cent.	No. of	Deflection
1 3 4 5 6 7 8 9	48,400	83,800 81,900 85,700 64,700 78,340 84,180 80,760 82,800 82,280 84,700 82,060	16.6 16.8 15.6 14.9 17.9 15.4 18.3 17.3 20.1 17.6 18.1	26 28 29 34 45 30 44 36 48 45 46	24 29 29 29 29 30 34 35 45 42	1.22 1.25 1.23 1.24 1.29 1.22 1.26 1.35 1.35 1.22
12 13 14 15 17 18 20	49,902 51,860 50,540 48,640 47,740 47,500 48,830 48,120	8;680 86;340 8;300 8;800 80;100 79;480 81;400 80;000 71;830	17.3 13.2 18.6 17.2 16.1 14.9 14.4 16.7	46 32 45 47 32 36 28 48 50	36 45 47 36 28 26 27 42 25	1.24 1.22 1.24 1.30 1.28 1.30 1.42

Each of these figures represents the mean of two tests, in which the differences ob-served in the limit of elasticity and the breaking strain varied from 120 pounds per square inch to 1300 pounds per square inch. Tests Nos. 9, 10, 11 and 12 are those of hoops which had been tempered three times in oil. No. 13 has a somewhat low extension, of cast iron, and yet the metal is comparatively soft. It contains on the average: Carbon, 0.65 per cent.; manganese, 1 per cent. to 1.20 per cent., and silicon, 0.25 per cent. to 0.30 per cent. It is, in fact, the quality demanded for rails by one of the French companies. The flanges of the cylinders, after turning, took a very fine polish, even at the gits, and were free from any defects. The metal is ly tempered. In this case the series of hoops to which this tested hoop belongs are again heated and tempered in oil at a temperature lower than that at which they were previouscast in molds of loam, pierced with numerous holes to allow the gases to escape, and dried with great care. It is run in at the potton, the time occupied in casting heing uses them. op of the mold, and not at the bottom, the ime occupied in casting being less than two ninutes. This particular point should be offected at a higher temperature tempering is effected at a higher temperature. ininutes. This particular point should be noticed. The second point upon which the experimental studies of Terrenoire are experimental studies of Terrenoire are being directed comprises: he various methods of annealing and tempering applied for the purpose of assuring the molecular transformation of the metal, and of establishing the equilibrium of the molecules of a casting from bright cherry-red to a dull cherry color, according to the cherry-red to a dull cherry color, according to the cherry-red to a dull cherry color, according to the cherry-red to a dull cherry color, according to the cherry-red to a dull cherry color, according to the cherry-red to a dull cherry color. the equilibrium of the molecules of a casting of prescribed form, and consequently of enduing it with the highest mechanical qualities corresponding to the chemical composition of the metal. It may, however, be of interest to the Institute to learn the practical results obtained in what is considered an extremely delicate manufacture—that of hoops for cannon. More than two years ago Terrenoire supplied to the French navy a considerable number of hoops for guns of 3.94 inches. To-day we are working on an order for hoops of the same type, the specifications for which are more severe. I am only speaking of round hoops, which are of neations for which are more severe. I am only speaking of round hoops, which are of the following dimensions:

The carbon varies from 0.28 per cent. to the following dimensions:

Inches.

External diameter.

1.05
Thickness of metal.

Paper read before the Iron and Steel Institute

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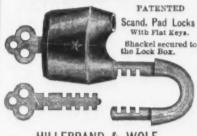
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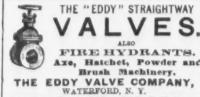
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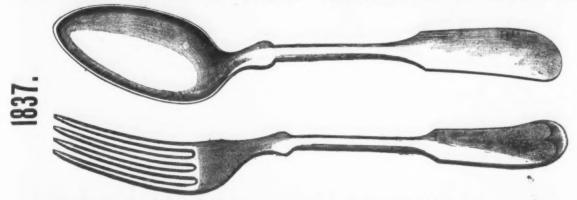




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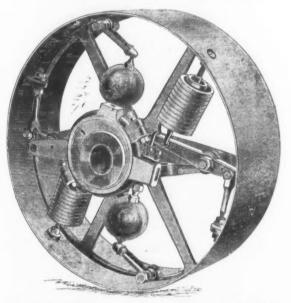
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steel, which remains, so to speak, a permanent order of the day in the proceedings of the Iron and Steel Institute. I mention, simply as a reminder, that solid soft steel castings are obtained by means of alloys of silicon, manganese and iron, with a minimum of carbon. Alloys which fulfill that very essential condition of containing but a minimum of carbon, are those in which the silicon and manganese are found in the proportion of their chemical equivalents. It is very difficult, if not impossible, tontain this with mathematical regularity. I have, however, succeeded, after numerous observations, starting with a burden calculated to a very great nicety, in producing these kinds



A Novel Governor .- Fig. 1 .- View of Governor from Outside.

of alloys of the desired formula, containing up to 13.5 per cent. of silicon and 18 per limits, there must be certain irregularities of motion in order that they may act at all. Theoretically, the ordinary governors cannot the state of the matter of the property of the arrested; the surface of the bath becomes quiet, and no gas rises through the slag. It is universally admitted that the gas disengaged from a bath of metal in the middle of the refining period is carbonic oxide. Well,

at a red heat to the bath of metal—Siemers-Martin process—immediately before casting. The process is, in fact, the same as obtains in the manufacture of soft metal with ferromanganese. But the addition of ferromanganese. But the addition of ferromanganese to a bath of soft metal is followed by a more or less violent reaction, accompanied by a disengagement of gas. With the addition of the alloy of silicide of manganese, on the contrary, the intermolecular reaction is calm. All ebullition is instantly arrested; the surface of the bath becomes lower and no gas riges through the slags. It crease the steam supply they meet a constantarrested; the surface of the bath becomes quiet, and no gas rises through the slag. It is universally admitted that the gas disengaged from a bath of metal in the middle of the refining period is carbonic oxide. Well, the addition of three or four thousandths of silicon, in the form of silicide of manganese and silicide of iron, is sufficient to instantly arrest this disengagement of carbonic oxide gas. The sample of metal taken before the addition of silicon is full of blow-holes; that taken after compact and homogeneous. Is this a purely physical action? Is it a sufficient explanation to say that the silicon has determined the solution of the hydrogen in the metal? But, in any case, it is carbonic This is made so that as they move to increase the steam supply they meet a constant or crease the steam supply they meet a constant. This gives them stability of action, but makes the total change of speed between full load and entirely empty a very considerable amount. The new theory which Mr. Ball has developed in the construction of his governor is to bring about changes in the point of cut-off, or in the supply of steam, by the changes of load itself, instead of by changes in the speed of the engine. As the change of load is what causes variation in the speed of the engine. This theory is eminently a rational one. The

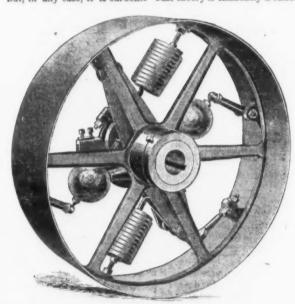


Fig. 2.-Inside View.

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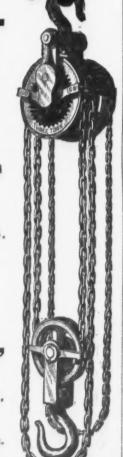
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oxide that is evolved before the addition of the silicon, and little or no hydrogen, according as the manganese is present in small proportion in the bath of steel, or is entirely absent. Metal made with silicide of iron always remains brittle under drop tests, and gives but low extensions under tensile strain, with a low and variable breaking load. These bad qualities come to light in forging. The metal cracks under the blows of the hammer, while metal made with silicide of manganese behaves in a much more satisfactory manner.

Ball Engine Co. send us the three diagrams, A, B and C, which we publish herewith, illustrating the action of one of these governors, and the results attained are certainly quite remarkable. Before speaking of them at length, however, the construction of the governors must be mentioned. The cuts show the form of construction used for single-valve automatics, in which the governing is affected by moving the eccentric across the shaft. To understand the application of the theory to a form of governor which at first glance is of quite a common form, a close inspection of the cuts is The manufacture of iron pans at Amoy, China, a large industry, is in the hands of two houses—a monopoly. The sale of iron pans in China is said to be enormous, and pans in China is said to be enormous, and the export of the same from Amoy, principally to the Straits Settlements, increased from 1,242,639 pounds in 1880 to 1,420,864 pounds in 1881. It was ascertained that the pans could be manufactured at Amoy, shipped abroad, and sold for one-half the price charged by the monopolists, and two men, an Englishman and a German, started foundries at Amoy with that fact as a basis of their intended competition. The local authorities, however, took a "furious stand" against the invasion of the foreigners, and Pekin officials have under consideration a request from Amoy to prevent the prosecution of the enterprise by foreigners, sourcely calculated to reduce the Chinese monopolists to the necessity of paying their laborers European starvation day wages.

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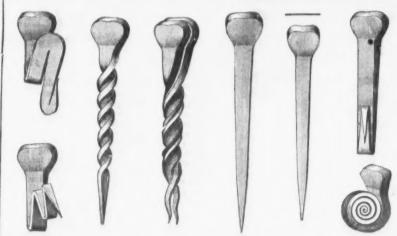
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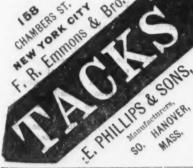
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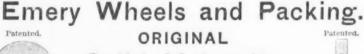
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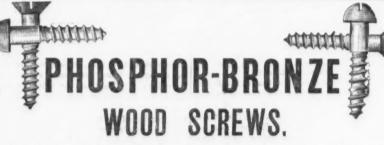
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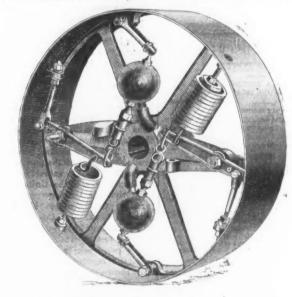
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Owners of the U.S. Phosphor-Bronze Patents. Sole Manufacturers of Phosphor Bronze in the United States.



itside of this eccentric is a secondary ec- This is the demonstration which the manu

said, the governor presents a familiar appearance. Fig. 1 is a view from the outside of the engine; Fig. 2, a view from the inside. Fig. 3 shows the inside with the eccentrics detached, while in Fig. 4 the eccentrics appear in their proper relations with the ball and socket joint. The main eccentric has an oblong shaft opening, and is suspended by a pin on an arm, giving it a pendulum-like motion backward and forth across the shaft. Mounted loosely on the shaft outside of this eccentric is a secondary ectivation of the load is clearly marked by the greater speed which was evidently picked up in three revolutions.



A Novel_Governor.—Fig. 3.—Governor with Eccentrics Removed,

backward on the shaft, the main eccentric is made to swing and thereby vary the steam supply in the usual manner. The condary eccentric has a sleeve surrounding the shaft, projecting through the oblong hole



Fig. 4.—The Eccentrics.

The speed diagrams A, B and C, were taken in a rather novel manner. A weight held by a spring in the balance-wheel revolved with it, and by centrifugal force,

centric, the ring of which engages a stud in facturers give, that the speed is completely the side of the main eccentric, so that as this secondary eccentric oscillates forward and extremest limits of load and running empty,

Tests of Bessemer Steel.

The Pittsburgh Steel Casting Company have recently made a series of tests and car-bon determinations of their refined Bessemer steel, in order to show the uniformity which may be attained in its manufacture. The results of the several tests were as follows:

No. of blow.	Elastic Limit.	Elongation in r inch fracture. Per cent.	Tensile Strength.
700	Not taken.	52	61,280
701	32,272	50	03.448
702	34,667	621/2	63.200
703	33-333	50	64,800

The steel was rolled into boiler plate, was

54	blows below										. ,																		0.10
14	blows below	١,																											0.10
1	blow below.				×				,		.,							,		, ,									0.11
2	blows below		. ,	,																		'n							0.13
1	blow below.																	h		. ,									Uskil
T	blow below.												,												٠				0.14
In	spring stee	el	l	t	h	ľ	,	S	a	11	10	9		u	1	i	ſ	0	1.	n	1	it	3	7	1	,V	8	l's	se-



Fig. 5.-" A." Speed Diagram from a Common Governor. Load Thrown On and Off.

aided by gravity, vibrated in a vertical direction at each revolution. The extent of these vibrations measured the speed of the engine.

Of course when the weight was over the shaft, gravity drew it toward the center, to blows. and when in the opposite direction gravity drew it from the center. This constant vibration corresponding with the revolutions is what is represented by the nearly vertical lines, the horizontal motion of the paper, which was constant, giving each line a slight use of good material and careful manipula-

5	blo	W	8			 	٠	۰				۰				٠					۰	
10	blo	W	S.									,										. ,
10	blo	W	S.										,						,			
	blo																					
15	blo	W	25																			
8	blo	W	58					ì														



inclination. A pencil attached to the weight drew the lines. The diagrams were all taken from the same engine under the same condition of load, which consisted of a condition of load, which consisted of a wheel submerged in water, so arranged that t could be lifted out or entirely submerged without interfering with the motion of the

The iron and general hardware stores in ngine. The engine itself could be controlled ither by the new governor or, at pleasure, by one of the common form, which was one looting by the Arab thieves. A correspondof the most popular in the market and highly ent writes that, while the extensive stocks



Fig. 7.- "C." Speed Diagram, Increased Speed Under Load

esteemed for its excellence. Diagram A is a sample of the best work which it could produce under the widest changes of load. In each diagram, near the middle, the load was suddenly thrown on. In A, this point is clearly shown by a marked falling off in the speed. In diagram B there is no evidence of the point where the engine took the load, but where the load was first met by

The Iron Age

Metallurgical Review.

New York, Thursday, October 12, 1882.

DAVID WILLIAMS JAMES C. BAYLES JOHN S. KING - Publisher and Proprietor Business Manager

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BRITISH AGENCY.

DAVID WILLIAMS, Publisher,

83 Reade Street, New York. CHATTANOOGA........... Eighth and Market Streets,

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BOL	E AMERICAN AGENCY FOR
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The oldest and Iron and Hardw	leading representative of the Britishare Trades.
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to countries of Monthly Foreign monger's Diary.	atside of Great Britain, including a Supplement and one copy of Iron
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the United States, October 1, 1882.

Our regular quarterly report of the condibe of interest to our readers who are con-cerned in the iron trade. In order to out exactly the scope of the table, the folowing explanations are given :

1. The divisions of the localities are geo graphical for the most part, and are not which furnace supplies are drawn. 2. The columns "in blast" and "out of blast" only show the stacks from which we have reports, and their footings will not in every case equal the footings of the column of total number. 3. We have included some furnaces that are rebuilding and not yet completed, and others that are building, and in one or two cases application cannot be far off. some furnaces that have been reported abandoned, since their owners do not report them. In this connection, however, we have availed ourselves of the new edition of Mr James M. Swank's valuable "Directory to the Iron Works of the United States," and think that our lists now contain very few furnaces that are not likely ever to go again in blast. For this reason also there will be more or less discrepancy between this and our last report. 4. The column of capacity per week is somewhat in excess of what the regular working of the furnace will show-stoppages, slow working and various other causes, which will readily occur to those interested, combining to reduce the make below the furnace capacity.

In a condensed form the table shows following (I, in blast: II, out of blast): CONDITION OF FURNACES OCTOBER 1, 1880

		1	II.
Charcoal			
Anthracite			
Bituminous		12	8 212
FF - 4 - 3		-	
Total		44	3 976
The relative	e conditi	on of the	blast furnace
of the country	v on the	1st of Oc	tober for fiv

years is as follows:

NUMBER OF FU	HNAC	ES IN	PLAST	OCT	BER	I.
Charcoal	86	1878. 83 88 80	1879. 97 138 113	1880, 153 143 128	1881. 153 148 134	1882 15 15
Total		951 OUT (337 OF BLA	424 8T 00	435 TOBE	44
	1877. 176		1879. 159 98 90			1882 9. 7: 73
Total	452	454	347	303	293	27

Solid Steel Castings.

In another column we give an extract from a paper read at the Vienna meeting of the British Iron and Steel Institute, by Mr. A. Pourcel, of Terrenoire, on the manufacture of solid steel castings and the methods of annealing and tempering to be applied to the metal, which cannot fail to be highly interesting to a large number of our readers For years past Terrenoire has assumed the lead in scientific investigation of the properties of steel, and of the relation its chemica composition bears to the treatment of the material requisite for the fullest development of its mechanical properties as a material of construction. There is probably to-day no other steel works in the world where an equal amount of money and labor is expended in experimenting, and when the splendid technical and financial results accomplished there are considered, our own ever-hurried steel manufacturers may well pause for an instant to think whether "experimenting" really don't pay," and whether the mill, rather than the laboratory, is not really the proper place for scientific investigation wherever practicable and tangible results are desired.

The most marked feature of Mr. Pourcel's paper is to be found in his recital of the nethods of annealing and tempering employed at the works, and of the great care and consideration which are bestowed upon Tariff Commission and its Labors. Condition of the adaptation of these mechanical manipulations to the chemical composition of the material. Reheating and retempering have hitherto been vaguely known to exert considerable influence upon the final product, out the credit seems to belong to Terrenoire of having given us the first positive definition of the proper functions of these manipula-

The first tempering transforms the tions. crystalline grain of the metal into a fine homogeneous grain; the second determines the molecular equilibrium of the casting, which corresponds to the chemical composition of the metal, and should be more or less intense according as the metal contains more or less than 0.30 per cent. carbon and 0.50 per cent manganese," is a statement the importance of which can hardly be overestimated. Its correctness is fully borne out by the practical results obtained; but its precision might have been improved by translating trempe into "immersion" rather than into "tempering." The English meaning of the word tempering is inseparable from the idea of hardening, which is certainly not intended to be conveyed here, as the immersion in oil of steel at a dull cherry red results in anneal-

ing it rather than hardening. The results obtained thus far fully estab-

Condition of the Blast Furnaces of penditure of heat and force for the purpose of molecular transformation in larger pieces than those mentioned in the paper, will have to be produced by several immersions into oil ble in damages if it is proved to have made in his power in the Forty-eighth Congress to tion of the blast furnaces of the country will from a high oxidizing heat, followed by two be found on the next page. It cannot fail to or more immersions from lower heats. The avoid any misunderstanding and to point is comprised, render the task of formulating this method dependent only upon the varying thicknesses of the metal. Certainly there is nothing very formidable in this, and a statements. series of experiments tending to establish made with reference to the points from this formulation will amply repay their cost by the saving to be effected in hammer

> The importance to steel manufacture in general of the fact thus established-that steel can be given all its mechanical properties by other means than hammering-is so evident that its practical development and

Reducing Production in the Finished Iron Trade.

We see that the subject is again broached in Pittsburgh of closing the iron mills during the hot months, the object sought being to reduce stock, keep up prices, and, as one party expressed it, "solving all difficulties between manufacturer and employee, preventing strikes and affording the work men needed rest and good wages." This nstom prevails now in the window-glass business, these works stopping two or three of the midsummer months, which time is oc cupied in rebuilding the furnaces and preparing for the "fire" of the next year.

This suggestion is by no means a new one and has frequently been made in past years by workmen at the time when trade has been dull and production far in advance of consumption, but it is not, of course, as every manufacturer will see at once as practicable in the iron business as in glass, and has really never been seriously considered by the manfacturers. Mr. Jarrett, of the Amalgamated Association, also seems to be in doubt as to the practicability of the A reporter of the Pittsburgh Chronicle represents him as saying in regard to it :

The practicability of the scheme could only b discovered by trying it. I am not prepared to say it would be a good thing or a bad one. The manu facture of glass and the manufacture of iron are two very different things. The iron trade cannot be regulated as the glass trade can. A glass manufacturer can tell about what quality and what shapes will be in demand at a given season and can regulate his product accordingly. On this account he can easily make arrangements for closing at certain times. With the fron manufac-turer it is different. At one time a certain kind of tron will be wanted and perhaps within a few weeks the demand will be for an entirely differ ent kind. Thus there might be serious difficulties

in the way of closing at any particular times. The same paper represents Mr. James I

Bennett as saying: I think the fellows who originated that were hard up for something to think about. It is utterly impracticable. Iron will be made whenever there is a demand for it, and just as much as there is a impractication. It is not a man and the state is a demand for it, and just as much as there is a demand for. All these things are governed by laws that no association of workingmen or no combination of manufacturers can regulate. The human mind can't grasp all the possibilities of trade. Combinations may tiffe things out of their natural channel for a while, but they can't keep them there. I suppose you could find fellows, farmers, who would say in July, "Oh, well, it's too hot to work now, suppose we let our crops stand out until December, when it is cooler." What kind of crops do you suppose they would have by that time? You can find plenty of men who think it is too hot to work at any time. The summer time is the season for building railroads, and they must have the iron they need. If some manufacturer thinks he would like to shut down for the summer, of course these orders will go to some nummer, of course these orders will go to som one who is willing to fill them. You can easily se how ridiculous the proposition is. Regarding the decrease in the supply, the idea is also illogical. decrease in the supply, the idea is also lingical. The supply will always try to keep up with the demand. If the demand is completely filled by ten months' work, of course the mills will stop running from necessity, or lay in stock for future needs. If there are not enough mills to meet the demand for iron, more mills will be built. False restrictions of any kind placed upon trade can only result disastrously in the end. niv result disastrously in the end

While we have no doubt that in the future combination is to take the place, in part at east, that has heretofore been held the mission of competition, the iron trade the question of the power of the State Legiswill have to be in a far different position from what it is now before this idea. in its details, will be practicable. might be practicable in the nail trade or in the nut and bolt business, but in a general iron mill where all classes of rolled iron are made, and where the mill has been arranged for supplying the special trade of each season, at that season it will be found well-nigh impossible to work such a combination successfully. In the associations that were formed some years since for the purpose of attempting to regulate prices in the iron effect, the Court upholds the authority of trade, the subject of stoppage in times of great abundance of supply, or, at least, of reducing production, was very thoroughly Illinois to points outside the State. Considcanvassed and found to be impracticable. In the rail business, on the other hand, it has been found practicable, and in 1880, our readers will remember, factories reduced production very materially, running only

The United States District Court for responsibility of a mercantile agency for injury done to the credit of a merchant by lish Barba's and Holley's theory, that the false reports. The court held that if the ing are similar to those produced by suc- due precaution to obtain accurate informaessive hammerings. As the hammers used tion and believed it to be trustworthy, and

and who had applied for them, then the re- | prosperity the internal taxes deemed necesnarrow limits within which the chemical to all of its subscribers, without regard to service he can render his constituents and composition of metal suitable for this work the fact whether they are or are not inter- the country at large. ested in knowing the financial standing of the house reported upon, the latter may recover damages for libellous and injurious

Railroad Decisions in Illinois.

The relations of railroads to the people, rom whom they obtain their franchises, are likely to be very carefully considered by the courts during the next few years, and from decisions at first perhaps conflicting, something like a law is likely to be created which will be accepted as defining the rights, powers and duties of these corporations. has just been decided in Illinois which is of interest to many of our readers. An enactment of 1878 provides as follows :

No railroad corporation shall charge, demand or receive from any person, company or corporation for the transportation, or for any other service, a greater sum than it shall at the same time charge, greater sum than it shall at the same line charge, demand or receive from any other person, company or corporation for a like service, from the same place, or upon like conditions or under similar circumstances; and all concessions of rates, drawbacks and contracts for special rates shall be open to and allowed all persons, companies and corporations alike, at the same rate per ton per nile by carload, upon like condition and under similar circumstances.

The facts of the case which arose under this law were, briefly, as follows: A shipped four cars of brick from Riverton to Randolph, on the Chicago, Burlington and Quincy road, to be used in a building, and was charged \$27 per car freightage, or the regular tariff. Bshipped the same number of cars, from the same place to the same point, the brick to be used in an engine house of a railroad grain elevator. The rate charged was \$20 per car. A complained of unjust discrimination. The commissioners held that the law above quoted authorizes special rates. The local business of the railroads and the public convenience require elevators to complete the transporting power of railroads. Railroad companies generally see to it that elevators are built, that the station may get its share of business. The storekeeper is assured more trade after the elevator is built, and is further assured of its continuance by every safeguard that can be added to it. Elevators are often built by public enterprise, to assure general convenience, the railroad companies hauling the material, usually at reduced rates. It is customary for railroads to give rates to private enterprises in which they are particularly interested, such as on material to make roads to reach their stations, ma terial to construct factories and material to be worked up in them and the product from them. It is reasonable to suppose the additional safety to the elevator, and consequently to the railroad proper, and business convenience justified the company to make special rates in this case. Both shippers are private individuals, but the use to which they applied the brick is different as to their relations to the public. There is a clear distinction that justifies the discrimination contemplated by the law maker. One elevator man should have the same rate as another elevator man for carload lots, and one citizen the same rate as another for the same amount of goods of the same class under like condition and circumstances." In view of all the facts, the commissioners held that the complainant A was not unjustly discriminated against in having to pay \$27 per car for the transportation of bricks, by the special rate given to B in the same class of freight carried the same distance. We cannot but regard the ruling of the commissioners as an absurdity, since special reasons can always be found for special rates which are quite as good as those given in this case.

An opinion was rendered by the Illinois lature to regulate rates charged by railroads for freight carried to points outside of Illinois, and whether the act prohibiting unjust discrimination in such rates is not in contravention of the Constitution of the United States. The case is one wherein a 66 per cent. larger rate is charged on a haul from Gilman to New York than on the haul from Peoria to New York, though the distance from Peoria is greater by 86 miles. It was held by the Court that the charge was unjust excessive, extortionate and unlawful, and, in the Railroad and Warehouse Commissioners to regulate freight charges from points in ering the way they regulated them in the case first quoted, their discretionary power in interpreting the law seems to us somewhat larger than the Legislature intended.

Hon. Wm. D. Kelley has been unanimously renominated to Congress by the fourth Penn-Arkansas has lately rendered a decision of sylvania district, and with him nomination much interest in a case involving the legal is equivalent to election. He has already served in twelve consecutive Congresses Though not as yet venerable in years, Judge Kelley is the "father of the House," and by effects of successive tempering and anneal- agency had acted in good faith, had used all several years the senior in Congressional service and experience in legislation of any other member. In his letter accepting the for large forgings must always be made had communicated the information relative nomination he expresses his views very service improved, American machinery is relatively much larger than those used for to the house in question only to any of its plainly on the subject of continuing through lighter forgings, it is probable that this ex- subscribers interested in knowing the facts seventsen years of absolute peace and large We may hope that nothing will occur to dim

port is in the nature of a privileged commu- sary to meet the exigencies of the Governnication, and the agency cannot be held lia- ment in time of war. He promises to do all

A "Parsee" Tariff.

Mr. J. S. Moore presented to the Tariff Commission, at its recent session in New York, a proposed revision of the tariff. together with his views as to the principle that should govern in that revision. Mr. Moore does not seem to learn anything from experience. Notwithstanding the ill-luck that has befallen every one of the tariffs that he is supposed to have drawn up in whole or in part, he still comes up smiling with another tariff which he asks the commission to adopt. In blissful ignorance that the world has moved, he proposes that the rules laid down by Robert J. Walker, when Secretary of the Treasury, some time in the dark ages of the past, should be adopted as the guide in framing the present tariff. One of the absurdities of these principles is that all specific duties should be abolished and ad valorem duties substituted in their place. care being taken to guard against fraudulent invoices and undervaluation. Mr. Moore must either be too innocent or too wise and good for this earth. He certainly would confer a great favor on the Treasury officials if he would indicate how the undervaluations, which the special agents report are constant and persistent with our few ad valorem rates, could be avoided, and with all rates ad valorem it would be simply impossible. Such a tariff should be entitled "An Act to

Encourage Smuggling." We also notice the statement that Mr. Moore has proposed an entire revision of the tariff. He certainly is a very bold man. We do not know of a man in this country, with possibly the exception of Mr. Moore, who would lay claim to sufficient knowledge of the different industries to enable him to frame a complete tariff. We do not believe that Judge French or Mr. James, of the Freasury Department, would do it; nor do we elieve there is a protectionist in the country, though he may have spent years in discussing tariff matters, who would dare undertake such a revision. But Mr. Moore, at this ime and in the past, does not hesitate to do t. To be sure his work has been rather rude, and has resulted in placing two or three different rates of duty on the same article, out this does not seem to trouble him, and he still acts in accordance with the old saying about a certain class of people rushing in where a much higher class fear to tread.

Commercial Annexation. The United States has ceased to make

var upon neighboring territory for the purof enlarging her boundaries, through the enterprise of our citizens, and the extension of traffic, we are annexing the population of Mexico, numbering about 10,-000,000 inhabitants. We do not yet fully realize this practical fact. More intimate commercial relations, fostered by railroad construction in that republic, are bringing about marvelous changes in the contiguous territories. The trade of Mexico with the United States is already greater than our trade with Russia or Japan, and the rapid development of the last few years promises an indefinite expansion hereafter. The progress of the Mexican people in other respects indicates great possibilities, the national revenue having increased within four years from an average of \$16,000,000 per annum to \$28,627,000 in the year 1881, while the trade of the United States with that country, according to our own official reports, has risen from \$20,800,000 in the year 1879 to \$28,626,000 in the year 1881. Attention is called to some of these facts in a etter written by W. W. Nevin, of this city, in reply to an elaborate article by Hon. John Bigelow, in Harper's Magazine for October Mr. Nevin takes issue with the latter in regard to the stability of the railway system being prosecuted in Mexico, making a clear distinction between those enterprises which have an actual existence and those which are found only on paper. The National, Central, the Sinaloa and the Guaymas roads, he says, have an aggregate mileage of say 1300 miles built, and the system completed "will have lost-say 4600 miles at \$25,000 per mile-something over \$100,000,000." As an investment the English road from Vera Cruz to the City of Mexico is not accepted as a fair criterion (although its stock is now quoted in London at 143), its liabilities being \$133,000 per mile, while the Mexican National is bonded not to exceed \$25,000, the Central not to exceed \$32,000 per mile. The subventions are pavable in a large measure from the customs dues, which are very like the land subventions to the first Pacific railways. The railroads in Mexico, we are assured, "will also make the customs subventions good."

The views taken by the writer quoted are certainly of a cheering character, and apparently justified, if his promises relating to the new era" which has dawned upon Mexico are correct. Foreign trade is coming, emigrants are arriving, towns on the frontier are growing, banks are being established, steamship lines authorized, the postal being introduced, coal mines opened, &c.

the glowing prospect. Commercial annexation, in any event, is better than military conquest.

Charges on Shipping.

The charges on shipping collected at the port of New York together make a formidable list, operating seriously to the detriment of commercial interests. The alleged exorbitant fees for pilotage gave rise, on the part of foreign steamship owners, to an effort to their own business they cannot expect any maintain an independent steam-pilotage service, which, however, was abandoned under a decision of the State courts against its legality. The controversy has since raged fiercely, until last week a final conference took place between representatives of the New York Chamber of Commerce and the Sandy Hook pilots, and after discussion the latter submitted their ultimatum in the form of two propositions. They would agree to a rebate on all charges on American shipping, or to a reduction of 15 per cent. on the gross tonnage at this port. Mr. Elwell, chairman of the Chamber of Commerce Committee, who is also president of the Maritime Exchange, contended that such discrimination would be unconstitutional, and besides would be inadequate and unsatisfactory. He him- form for which those gentlemen had not barself acted as agent for several foreign lines, and knew whereof he affirmed. The committee nevertheless consented to consider the Charles McDonald, it was finally decided to proposition from the pilots, but next day returned a response through the secretary of two, with power to appoint a commission of the Chamber of Commerce, to the effect that experts to investigate and report on the the proposed reduction in either shape was management of the concern. The passage rejected; that nothing less than 33 per cent. off would meet with the approval of merchants, and that no alternative remained other than an appeal to the State Legislature and to Congress. The controversy, therefore, promises to be protracted, and the result affords reason for regret.

The Tariff Commission and its Labors.

So far as hearing testimony is concerned, the Tariff Commission has about ended its labors, its last session for this purpose being held at Philadelphia Saturday of this week. Whatever view one may take of the wisdom of the method adopted in the provision for this commission or of its constitution, there can be no question as to its industry. There has not been a working day since it began work that it has not held sessions. There has not been a person, whatever may have been his claims, who has desired to be heard that has not been heard. It has held sessions in most, if not all, of the chief cities east of the Mississippi, and the amount of testimony taken has been enormous, as well as of various degrees of value. All this has been done in employed more profitably to themselves in can be done twice during the same year. A their own business. Their work has been series of illustrated drawings were shown, difficult and fatiguing, and, so far as we giving sections of the Clyde in the years 1758, have been able to judge, very far removed from the "junketing trip" it has been supposed to be by some who have not kept which has gradually been widened into a posted as to their doings. We do not believe deep tidal river. One of the interesting that a Government committee or commission features of the exhibition was the model ever existed that has devoted itself more showing the method in which John Murray continuously and faithfully to the work be- removed a lighthouse a distance of some 450 fore it than has this commission, and while we may not approve of all its methods, and house was 338 tons; 144 rollers were used question in some respects its judgments in with three winches for the moving power, minor details, still that they have done hon- and 21 men. The average rate of speed was est, faithful work no one can deny.

And yet there is an impression that the Commission is not going to be fair, and because of this belief, some who should have appeared before it and given its mem-Oliver, of the Commission, and Mr. Morrison, the session of the Commission on October 5, and all the more so for the reason that hith-admirably brings out this idea. Mr. Morrierto inquiries of such extent have found but son, after giving the views of his delegation, little space in scientific journalism. was suddenly asked by Mr. Oliver-we use the report of the New York Tribune :

"How many importers are there in New York City i" Oh, I could not tell you," replied Mr. Mor-

before this. We have advertised our meetings, solicited by letter and circular the appearance before us of all persons interested in the tariff, and yet you do not come forward until the time we have at our disposal for open meetings is almost exhausted. Do you consider that right?"

"Well," replied Mr. Morrison, after a moment's hesitation, "I will say frankly that we have had no confidence in you. When we talked about coming here before you, business men said to us: "Why it will be a waste of time to go there. If

coming here before you, business men said to us:

'Why, it will be a waste of time to go there. It
will do you no good.' That is the encouragement
we got from our business associates."

Mr. Morrison's words turned the eyes of some of
the commissioners to the floor and the eyes of
others to the ceiling. Mr. Oliver pressed his lips
hard together and then said: "So you preferred
to neglect your own and the public's business
rather than to give us an opportunity to prove
that we were competent to investigate the subject
of the tariff? Was that right? Had we no record, that you refused to assist us, when we have ord, that you refused to assist us, when we have given every working day since our appointment to the hearing of complaints and recommendations? Don't you think that you have neglected your

them, unless they have given the Commission the benefit of their views. If the importers do not spread their grievances and make their demands before the Commission, they are in honor barred from complaint. If labor does not make known its wishes before the Commission, they are bound in honor not to complain. They have their day in court. If they do not avail themselves of it they have no one to blame but themselves if they are non-suited. If they do not attend to one else to do it for them.

At the special meeting of the bridge trustees held on the 9th inst., President Murphy, after the reading of the minutes of the previous meeting, offered a resolution to appoint Mayors Grace and Low and Messrs. Marshall and Agnew a committee to examine and inquire into the financial affairs of the bridge, the methods of letting contracts, &c. in short, into the charges made against the concern by the New York World. The "whitewash" in this resolution was too thinly covered to be concealed, and much to the chagrin of Mr. Murphy and friends the resolution was passed, but in a gained. At the suggestion of Mayor Low strongly supported by Mr. Bush and Mr. of the resolution in this form is the handwriting on the wall. Tweed and Connolly in 1871 also clamored for an investigation, and they also got it in a somewhat different form from what they expected.

The versatile Chinaman aspires to some thing above the laundry business, and has already begun to exert an influence in com-We notice that among the conmerce. signees of tea per steamship Venice, from Hong Kong, are three Chinese firms in New York, one of whom receives 168 packages. It will not be strange if we soon have in port Chinese steamships direct bearing tea cargoes. "The world do move."

The success of the Marine Exhibition at London has been something of a revelation to the British public, and several similar works have been undertaken elsewhere. The last one is called the Northeast Coast Marine Exhibition. A good deal of the material which has been shown elsewhere was made to do duty at this exhibition, which was held on the Tyneside. It is a remarkable fact that not only is it possible in the the summer months when most people are United Kingdom to organize a large and inseeking recreation, and done by men some of teresting exhibit, composed entirely of matwhom, and most of whom, could have been ters relating to marine work, but that this feet along a pier. The weight of the light 33 feet per hour, and the greatest was 84 feet in the same length of time.

We present to our readers, on another page, have appeared before it and given its mem-bers the benefit of their advice, stood back, the iron and workmanship in the beam-strap or have until recently, and refused to give of the steamer Kaaterskill, the failure of just the evidence that is perhaps necessary to which attracted unusual attention at the prevent the Commission from being one-sided time of its occurrence. The thoroughness in its judgment. A colloquy between Mr. of the work displayed in the article mentioned, will commend it to thoughtful study of New York, representing the importers at by all engineers interested in construction, The application of the scientific results obtain by this investigation to the practical working of the metal constitute probably the most attractive feature of the article, and will undoubtedly be best appreciated by those rison.

"Well, there must be several hundred of them," continued Mr. Oliver. "What I want to get at is only you have not presented your grievances to us before this. We have advertised our meetings, letter and circular the appearance experience on all sides as we understood by letter and circular the appearance experience of the several hundred by letter and circular the appearance of the several hundred of them." constantly handling the metal in the mill stand, our readers will undoubtedly appre ciate the propriety of our forbearing at this time to enter into extended discussion of the immediate cause of the failure.

A circular from Downing street, London, received in Ottawa, says, respecting trade regulations in the Dominion, that the duty on steel boilers is 121/2 per cent. ad valorem, and that sewing machines must be ap praised "at the price at which they are sold at the place of manufacture by the agents of the manufacturers, and not at the prices at which manufacturers supply such agents."

A most instructive article might be written on the subject of lost inventions. Scarcely any mechanic of experience but remembers

CONDITION OF THE BLAST FURNACES OF THE UNITED STATES, OCT. 1, 1882.

(Compiled for The Iron Age).

		•	CHARCO	AL.			A	NTHRA	CITE.		Σ	ITU M	LNOUS	OR CO	OKE.
Location.	Total number of stacks.	Number reported in blast.	Capacity per week.	Number reported out of blast.	Capacity per week.	Total number of stacks.	Number reported in blast.	Capacity per week.	Number reported out of blast.	Capacity per week.	Total number of stacks.	Number reported in blast.	Capacity per week,	Number reported out of blast.	Canadity ner week
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New York			30				32								
lew Jersey			933			17	6.0	3,240							
Spiegel								3,240		1,343					
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Lower Susquehanna Valley						25	15			2,385					
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Eastern, Central and Northern	3			3	263						21	10	2,990	II	3,
Hocking Valley	!										15	8	1,402	7	ű,
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Hanging Rock	7	4	415	3	230										
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orgia	6	3	378	3								1	550		
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Orum, of Philadelphia, invented a most ingenious flexible mandrel, for enabling pipes of all kinds to be bent readily and in a very perfect manner. Advantageous as this seemed to be, and perfect as it appeared in its working, it has entirely disappeared from public notice, and, so far as we can learn, is as utterly lost as any of the so-called lost arts of the ancient world. The same is true of a certain drill shown us half a dozen years

The Spanish Government, through its Minister at Washington, has signified its readiness to ratify the Spanish-American treaty, approved by the Senate of the United States last July, for the protection of trademarks. Cigar manufacturers are chiefly, it not exclusively, interested.

Meeting of Eastern Iron Ore Producers.

Yesterday afternoon a meeting of iron-ore producers of the Eastern district of the United States was held in the office of the Delaware and Hudson Canal Company, 21 Cortlandt street, New York, to consider the question of effecting a permanent organization. Mr. Silas H. Witherbee was chosen chairman, and Arthur F. Wendt secretary of the meeting. Immediately after organizing,

the following resolutions were offered:

Resolved, That the chairman of this meet ing shall appoint a committee representing the Eastern district of the United States, comprising New England, New York, New Jersey, Pennsylvania East of the Susquehanna River, Delaware, Maryland and Virginia, to perfect an organization of the iron-ore producers of the said district, on or before December 1st, 1882.

Resolved, That the chairman of this meeting be chairman of the committee.

These resolutions having been adopted without discussion or dissent, the chairman appointed the following gentlemen a Committee on Organization:

Wm. H. Barnum, Connecticut.
F. S. Witherbee, Port Henry, N. Y. F. S. Witherbee, Port Henry, N. Y. Smith M. Weed, Plattsburg, N. Y. John Webb, Jr., Gouverneur, N. Y. Albert Tower, Poughkeepsie, N. Y. A. W. Humphreys, New York. Arthur F. Wendt, New York. Arthur F. Wendt, New York.
George Richards, Dover, N. J.
E. Canfield, Dover, N. J.
Richard George, Dover, N. J.
N. H. Heft, Valley, N. J.
S. D. Brown, Paterson, N. J.
J. W. Pullman, Philadelphia, Pa.
Robert H. Coleman, Lebanon, Pa.
E. F. Lewis, Virginia.

The meeting then adjourned, subject to the call of the chairman of the comnittee.

More Labor Troubles in the West. There still seem to be some echoes of the trike left in the West, and this time it is at Just what the cause is it seems almost impossible to ascertain, there are so many conflicting stories. However, it does not appear to be that the men refuse to work at Pittsburgh prices in accordance with their agreement. One statement is to the effect that the man claim that they were entitled to

WASHINGTON NOTES.

(From Our Own Correspondent.) WASHINGTON, D. C., October 11, 1882. THE TARIFF COMMISSION.

According to advices received here of the progress of the Tariff Commission, the efforts of that distinguished body are begin-ning to show some evidence of practical results. The representatives of the industrial interests have apparently settled down to an appreciation of what is needed by the ommission in order to furnish the material for a report calculated to cover the main points of information which Congress was in need of, and for the securement of which ated.

Sufficient expressions of opinion have been advanced to indicate that members of the Commission who have not had the opportunity by previous experience to become familiar with the intricacies and ambiguities of the iron tariff, have had ample facilities for doing so during the visit to the iron centers of the country. Some forcible and convincing points have been made. In the matter of steel rails it has been very concluaively shown by facts and figures that if it had not been for their protection the price would be double what it now is. It has been shown that by enterprise and competition prices have been kept down and vast indusprices have been kept down and vast industries, establishments employing thousands of hands at remunerative wages, built up. It is not improbable that there will be some discussion on the rate of duty as between \$18 and \$14. It is not likely, however, that the latter figure will be adopted, notwithstanding the earnest advocacy of that rate by Abram S. Hewitt.

From all indications the questions which

From all indications the questions which will be most likely to excite considerable discussion will be the rate of duty on iron ore and pig iron. These topics having created a spirited interchange of views in the Cresson Convention, members of that body have already shown an inclination to carry it into the hearing before the Commission The economic considerations in the minds of those who are large purchasers seems to be to place the consumers on the sea coast or to place the consumers on the sea coast on the same basis as to prices with interior es-tablishments near the place of production. The scientific feature seems to be the ad-vantage of mixing foreign, particularly Spanish ores, with those of native produc-tion. The views expressed by members of Congress point to an animated controversy on the duty on foreign iron ores. It is not on the duty on foreign iron ores. It is no improbable that the iron producers will be strengthened by an influential co-operation from representatives from the manufacturing districts, as there seems to be a disposin on the part of some to go to the extent

of favoring free iron ore.

It was suggested by an influential Representative in Congress that it would be wise for the friends of the iron interests, on the tariff, to agree upon some general plan and to adhere to it; that for one branch of that industry to urge protection for itself and to advocate free trade or a nominal rate for another, would have a very injurious effect when the question comes up for final settle-

SIMPLIFICATION OF THE TARIFF.

any mechanic of experience but remembers business?"

any mechanic of experience but remembers business?

The Iron Age that there was no doubt that then ewe schedules, remarked to the correspondent of the notice before the new price list took effect, and this notice was not given, but when the new schedules, remarked to the correspondent of the that they were entitled to notice before the new price list took effect, and this notice was not given, but when the new schedules, remarked to the correspondent of the trow has no doubt that there were on that there was no doubt that the new schedules, remarked to the correspondent of the trow has not on the list and this notice was not given, but when the new schedules, remarked to the correspondent of the trow has not on the list and this notice was not given, but when the new schedules, remarked to the correspondent of the trow has not on the list and there were deptited to the open days of the special to the present tariff and 103 in the country. The value of the schedules, remarked to the correlation of the the trow has not on the list and

into sizes even as low as 1-16th, and then rating the duty on this basis. He thought that all iron of a certain grade or class might be put under the same head with respect to duty. He instanced the item of trace chains. The "Tariff on Imports into the United States" says (No. 97): "Chains, trace chains, halter chains and fence chains, made of wire or rods, not less than ¼ inch in diameter, 2½ cents per pound; less than ¼ inch in diameter, and not under No. 9, wire guage, 3 cents per pound; under No. wire guage, 3 cents per pound; under No. 9 wire guage, 35 per centum ad valorem." Here are three standards of rating duty in a brief paragraph of five lines. First by diameter in parts of 1 inch, second by wire gauge, and third such per cent. ad valorem. It is quite evident that the author of this paragraph was much perplexed on the chain question, and at the same time was determined not to permit anything to escape. According to Judge French's view, all these articles could have been classed under one head. Just such unnecessary comunder one head. Just such nave been classed under one head. Just such unnecessary com-plications as these, he said, give rise to dis-putes and appeals on the part of importers, and imposed upon the department the un-pleasant duty of making discriminations one way or the other as between citizens who are manufacturers and citizens who are importers. Judge French has been giving close attention to the iron schedules, and when the Tariff Commission reaches its final labors he will be in a position to afford them much val-

will be in a position to afford them much val-uable information.

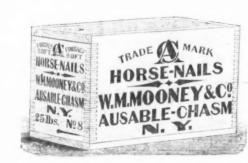
There is no doubt that the Congressional wiseacres will, when the question of adopting a tariff bill comes up, put on a great amount learning, which will serve to demonstrate of what little value their views are upon such subjects as compared with the combined wisdom of the manufacturers as set forth in the report of the Tariff Commission. The idea is to make recommendations. sion. The idea is to make recommendations based upon the aggregate views and wishes of each class of industry, so as to give little or no opening for changes on the part of those who desire a revision of the tariff on the basis of protecting American

The Tariff Argument at Pittsburgh. -We have received, at a late hour, a full report of the arguments before the Tariff Commission, at Pittsburgh, on Tuesday, by the committees appointed at the Cresson Convention, but owing to the crowded state of our columns we are unable to print it this

The Metal Industry of Sweden.-According to the data supplied by M. Loumyer, Charge d'Affaires of Belgium at Stockholm, the number of steel and iron works in Sweden amounted in 1880 to 56, of which there were 47 in Eskilstuna, 1 at Torshalla. I in the district of Skaraborg, I in that of Wermland. 4 in that of Söder-manland, and I in that of Oerebro. The value of the articles manufactured in that year amounted to 1.265,698 crowns (1 crown = 26.8 cents), being more than in the two = 20.8 cents, being more than in the two previous years, the value in 1878 having reached 1.227.557 crowns, and that in 1879 only 1.171,374 crowns, but less than in 1876 and 1877, when the value of the production reached up to 1,361.440 and 1,314,623 crowns respectively. The number of hands employed at the works amounted to 995. Of foundries and workshops there were 209 in 1880, viz., 103 in the towns, 3 in the villages, and 103 in the country. The value of the production of cast iron, being 400,206 cwt., was 4,628,167 crowns; that of other manu-Treasury, referring schedules, remarked to the correspondent of schedules, remarked to the correspondent of the front and there was no doubt that the new schedules could be materially simplified by a systematic generalization or confidence of the property of the property of the correspondent of the production of the production of the front manny as a systematic generalization or confidence of the production of the producti

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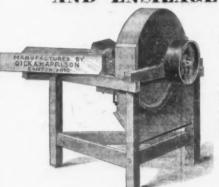
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SCIENTIFIC AND TECHNICAL.

The Circulation of Underground Waters.

At the recent meeting of the British Association Mr. C. E. De Rance read the report of a committee appointed for the purpose of investigating the circulation of underground waters in the permeable formations of England, and the quality and quantity of water supplied to various towns and districts from those formations, to which was added an appendix on the density and porosity of rocks in relation to the water supply. A knowledge of the porosity of rocks was stated to be important as regards the water supply.

When the law is almost proportional to the diameter of the wire. "If," he says, "you can carry a cultilization of current through a wire you must have 1 or 2 mm. diameter, of four times the section." This result has an important bearing on the extension of electric lighting.

Utilization of Old Castings.

Mr. F. Becker, of Neuss, Germany, wishto be important as regards the water supply, the suitability of stone for building purposes and in accounting for some of the lithological changes often observed in the strata of the earth. Though the matter had not escaped investigation, the vast volume of water stored in rocks had not been fully realized. The density of the old red sandstone was 2.61, the volume of water absoled by a cubic foot being over 0.707 gallons and by a cubic foot being over 0,707 gallons and by a square mile 3 feet thick 59,000,000 gallons. Conglomerate beds of the same formation are still more absorbent, being capable of taking in 0.805 gallons per cubic foot or 67,000,000 gallons per square mile 3 feet thick. The millstone grits which lay at the base of the coal measures vary much in different localities, that found in the forest of Dean here the casting was reduced in size until it could be moved without much trouble. It would seem that there must have been local circumstances preventing the use of dynamite to reduce the casting to smaller pieces, since if this was not the case it would appear that an unnecessary amount of labor had been expended in achieving the Dean being the most porus and absorbing 66,000,000 to the square mile three feet thick. Some of the coal measure grits also stored large volumes of water. The Pennant rock, 900 feet thick, in the Bristol coal field was capable of absorbing 12,000,000 gallons in a square mile 3 feet thick, and speci-mens of magnesian limestone taken from the neighborhood of Bristol gave 86,000,000 gallons, but the carboniferous limestone was quite the reverse, absorbing only 3,500,000 gallons. Oblites were stated to hold vast stores of water, and the rock was used extensively for building purposes. From an analysis of rocks it is clear that nothing in their chemical composition could purify the water, and in order to get rid of organic the pump. The air from the pump is forced into a tank filled with about 2 quarts of gasoline and issues through a burner. Communication between the lattered to the pump of t the oxidizing agent was considered to exist in the air absorbed by the water and the air contained in the interstices of the rock.

New Electric Lamps.

Mr. Emile Reynier has recently devised several new forms of semi-incandescent lamps. One consists of eight or nine buttons lamps. One consists of eight or fine outtons of carbon built up one above another in a pile comprised between two metal electrodes, the whole being inclosed in a vacuum bulb. The current traversing the set of carbon joints heats them white hot, and the result is a brilliant light. Other patterns of his design are uninclosed in a vacuum. In these the single pencil of carbon impinging on a copper electrode is replaced by two or three carbon pencils. The current is sent through all these and the double or treble points become white hot.

A New Thermo-Chemical Battery.

At the recent meeting of the French Association for the Advancement of Science, Dr. Brard, of La Rochelle, read a paper in which he described a new method of generating electricity by the combustion of a peculiar kind of fire slab. This slab consists of a brick of carbonaceous matter and a brick of nitrate of soda or nitrate of potash, placed together, but separated by a thin sheet of asbestos paper, and both enveloped in a wrapper of asbestos. The carbon brick is formed of about 100 grams of coal dust is formed of about 100 grams of coal dust kneaded into a paste with tar or molasses, and shaped in a mold by heat. The mold gives the brick a pitted surface above, and perforates it with holes through and through from the upper to the under side. Strips of brass or copper are also embedded in the under side of the brick to serve as an electrode for the carbon pole of the electro-generative element. The other brick consists of a mixture of three parts ashes and one part nitrate of potash or soda, melted together and poured upon the pitted surface of the carbon, which, however, is first covered with a layer of asbestos paper. Strips of brass are also embedded in this compound to serve as an electrode. The slab thus formed brass are also embedded in this compound to serve as an electrode. The slab thus formed constitutes a generator of electricity when wrapped in asbestos and placed in a furnace or fierce fire. In such an element the carbon forms the negative plate, and is oxidized, just as zinc is oxidized, in the ordinary voltaic cell; the nitrate of potash being the oxidizing substance. The slab becomes a thermo-chemical battery, and Dr. Brard states that an electric current is obtained strong enough to actuate an ordinary electric bell. By connecting several of these elementary slabs after the manner of a voltaic battery, a more powerful current may be battery, a more powerful current may be obtained.

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Obtained.

The Efficiency of Washed Coal.
Though it is generally conceded now that wet bituminous coal will not make as large a quantity of steam in a boiler as dry coal, there are few figures to substantiate this. There have been firemen, and there are some now, perhaps, who insisted that their coal yielded better results after it had been liberally moistened than when dry, but of late that idea has lost ground, and, as a generally conceded now that their coal yielded better results after it had been liberally moistened than when dry, but of late that idea has lost ground, and, as a generally one of the opens and shuts easily; it is provided with a distribution of the extends in a vertical direction along the side of the hammer. The latter, in there have been firemen, and there are some now, perhaps, who insisted that their coal yielded better results after it had been liberally before some now, perhaps, who insisted that their coal yielded better results after it had been liberally before some now, perhaps, who insisted that their coal yielded better results after it had been liberally before reaching the disk, and in this way opens the side-valve, which opens and shuts easily; it is provided with a dail, which extends in a vertical direction along the side of the hammer. The latter, in the reces of the disk, and in this way opens the side-valve, which obturator is a simple stide-valve on a time, when dry coal, there are few figures to substantiate this. There have been firmen, and there are few figures to substantiate this. The some now, perhaps, who insisted that their coal yielded better results after it had been liberally before from coal yielded better results after it had been liberally before from coal yielded better res

currents are near together the radiating sur face has to be taken into account. He finds by experiment that if there is a departure from the law of the square of the diameter, the law is almost proportional to the diameter of the wire. "If," he says, "you can carry

Mr. F. Becker, of Neuss, Germany, wishing to utilize an old casting that was too large to take to the cupola and could not be conveniently broken up, hit upon the expedient of building a furnace against it and tapping it off on the spot. Carefully cover-ing the mass with refractory material to prevent the radiation of heat, he lighted a coke fire at one corner, and as soon as that portion melted ran it off into a ladle, and by repetition of this process with the other corners the casting was reduced in of dynamite to reduce the casting too smaller pieces, since if this was not the case it would appear that an unnecessary amount of labor had been expended in achieving the end aimed at.

Hoskin's Hydrocarbon Blow-Pipe and Furnace.

Assavers, chemists, jewelers, plumbers and other artisans who are frequently called upon to use high temperatures on a small though working scale, will find Hoskin's hydrocarbon blow-pipe and furnace a most convenient assistant, which may be used at all times and is easily manipulated. The apparatus convisits essentially of an ordinary. a burner. Communication between the lat-ter and the tank is established by means of the pipe. The latter is provided with a check valve, by means of which this communication may be cut off when desirable, and the intensity of the blast may be regulated from the heat of an ordinary Bunsen burner to that required to fuse cast iron. The burner is separate from the furnace, and may be used as a blast lamp for other purposes, and as all the passages in the burner are per fectly straight, they can be easily cleaned. The burner is thus preferable to the curved and coiled devices frequently used for simi-lar purposes. The blast is directed into a lar purposes. furnace containing a crucible, in which the material to be heated is placed. The complete apparatus, crucible furnace, muffle furplete apparatus, crucible furnace, mufile furnace and blow-pipe occupy a surface of about 3 feet by 18 inches, and is constructed particularly with regard to portability, space and light weight. The consumption of fuel is naturally subject to so many conditions that positive data cannot be given, but it is stated that in ordinary effective operations one gallon will burn from six to seven hours. The apparatus is manufactured by William The apparatus is manufactured by William Hoskin, of Chicago, Ill., and is claimed to have given very satisfactory results.

Manufacture of Steel Dies.

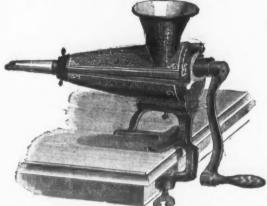
Dies for stamping out small parts under the steam hammer are now made by cutting out the recess to the required shape from a steel block, a process which requires a great deal of time and considerable skill. A method of producing them more quickly and cheaply has, however, recently been communicated to the Liége Association of Engineers by M. Champney, and may not be without interest to our readers. M. Champney makes an impression on a heated block of steel, kept from contact with the air, by means of a punch which is an exact copy of the part which it is desired to reproduce. The die consists of a small cylinder of cast steel with a slightly conical end, and which out the recess to the required shape from steel with a slightly conical end, and which is intended to be compressed when the recess is formed, the dimensions of the cone being determined by the experience of the operator. The die is heated on a plate covered with a cap of refractory material, under which are poured, at the moment of placing in the furnace, a few drops of oil. When vided with an obturator, which closes at the instant the small block of heated steel de-

loss by using wet coal of 14 per cent.

The Conductivity of Wire.

At a recent meeting of the British Association, Prof. George Forbes read an interesting paper on some experiments undertaken by him to ascertain whether or not it was true that a wire of twice the sectional area would convey an electric current of twice the intensity. It might be expected that if one wire would carry a current of one volt, two similar wires would carry two volts. This would be so if the currents were far apart; but Professor Forbes finds that when the

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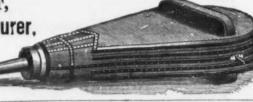
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A Year's Work with the Emery Testing Machine.

In our issue for last week we gave atten tion to some portions of the report of Col.
T. T. S. Laidley, commanding Watertown
Arsenal, and in charge of the United States testing machine there located. We present at this time the report of Walter G. Berg, C. E., on quality and character of wrought iron in test bars, taken from irons L and S for comparative tests of extra-refined and

for comparative tests of extra-renned and double-refined iron, which forms an important part of the general report. In his preliminary remarks Mr. Berg says:

In this report the iron slab formed by rolling out the puddle balls will be called "muck iron," the muck iron, heated and "muck fron;" the finite fron, fleated and rerolled, will be called "reheated iron;" the reheated iron, reheated and rerolled, will be called "double-reheated" iron. The usual practice at mills distinguishes three grades of iron formed from the same muck bar, according to the amount of refining (i. e., re-

Extra Refined.—The pile from which

Time in rolls —; 9 reductions (2 rough box, 2 rough gothic, 3 box, 2 flat finishing) in

IRON S .- PASSAIC ROLLING MILL CO. 1. Ores and Pig Iron.—This iron is formed y a mixture of different qualities of pig iron the puddling furnace at the mills, viz. usconetcong iron, Stanhope, N. J.; Pe

quest iron, New York; Thomas Iron, Valley, Pa.; imported English iron.

2. Muck Iron.—Double puddling furnace, anthracite coal, cold blast. Port Henry ore anthracite coal, cold blast. Port Henry ore in blocks for fixing; no paste used. Time in furnace, I hour 15 minutes to 2 hours. Puddle balls reduced by Burden squeezer. Blooms rolled on 3 high, 18 inches train. For 2½ x ¾ inches muck slabs the bloom was 45 seconds in rolls, and received 10 reductions (8 gothic, 2 flat). The thickness of muck slabs averaged ¼ inch full.

ductions (8 gothic, 2 flat). The thickness of muck slabs averaged 3/4 inch full.

3. Reheated Iron.—The piles for forming 2½-inch and 3½-inch reheated slabs were 6 inches wide, 6 inches high and 20 inches long; 6 layers high, entirely of 2½-inch and 3½-inch muck slabs, lapped. Time in rolls, 14 minutes, 12 and of the piles and 14 minutes. cording to the amount of reining (t. c., reheating and rerolling) the mass of the iron is
subjected to, viz.:

1. Single Refined.—The pile from which
the definite iron is rolled is formed entirely
of muck slabs.

2. Extra Refined.—The pile from which
2. Extra Refined.—The pile from which
3/2-inch mack slabs, lapped. Inme in rolls,
4 rough box on
2-high 18-inch train, 6 rough gothic, and 2
flat finishing on 3-high 18-inch train) in 13
passes. The thickness of reheated slabs
averaged % inch.

4. Extra-refined Iron. (a.) Three test

2. Extra Refined.—The pile from which the definite iron is rolled has reheated tors and bottoms, and muck slabs for intermediate layers. (In some cases, especially large piles, also reheated centers.)

4. Extra-refined Iron. (a.) Three test bars 3 x 1 inch x 1 foot; mark: S 11, 12, 13.—Piles, 6 inches wide, 6½ inches high, 25 inches long; 7 layers high; tops and bottoms, 6-inch reheated slabs; intermediates,

reheated slabs, nicked on one side and bent cold, showed tough and fibrous. Bent cold tallinic streaks and spots. Three and one-half-inch reheated slabs, nicked light on one side and bent cold, showed very tough and erable crystallinic streaks on nicked side.

The Mineral Wealth of India.

The mineral resources of India and their development formed the subject of an inter-esting paper recently read before the Society of Arts, London, by Mr. V. Ball. Various hypothesis regarding the mineral riches of hypothesis regarding the inheral riches of this country have been advanced at differ-ent times, but few, if any, attempts have been made to bring together the widely-scattered information relating to any single mineral production, and to this fact is, in a great measure, due the unreliability which must be placed upon the opinions sometimes expressed as to the values of different products. Mr. Ball confidently states that the highest peaks of the Himalayas, under per-3. Double Refined.—The pile from which 3½-inch and 2½-inch muck slabs, lapped. petual snow, undoubtedly contain enorm

without nicking, skin cracked at 45°, crack opened across face at 90°, broke off completely at 135°; fracture fibrous, with crystallinic streaks and spots. Three and one-half-inch reheated slabs, nicked light on one other regions, copper ores were formerly side and bent cold, showed very tough and fibrous, with a few crystallinic spots on nicked side. Six-inch reheated slabs, nicked many of which were deserted long before light on one side, showed very tough and fibrous, with a few crystallinic specks. Eightinch reheated slabs, nicked light on one side, showed tough and fibrous, with considered, showed tough and fibrous, with considerations of sufficient abundance to insure sula, there is, at present, no evidence that they are of sufficient abundance to insure successful mining operations. With the ex-ception of iron, there is no metal of which the ores appear to have been worked to so large an extent as those of lead. Galena. associated with small quantities of silver, is most commonly found, and the percentage of the latter metal is, in some cases, so high that it seems probable that the ancient workers devoted their attention to the extraction of silver rather than to that of the lead. It is certain, however, that in some of the localities considerable quantities of lead were produced, as for instance in Ajmir, where the mines were of great extent, and had in 1830 the appearance of having been worked for centuries. Traces of zinc have been found in several parts of In but have, however, been worked in only one locality. The principal ore is smitsonite or zinc carbonate, which was reduced in ingeniously contrived retorts. There are rea sons for supposing that the same ore occurs in one of the Karnul galena mines, where it was probably treated as refuse, its character not being known to the native miners.

The process of iron manufacture as practiced by the natives has much interest ticed by the natives has much interest, both historical and technical, connected with it. The costly experiments which have been made have served to prove several facts, of which the principal are: First, that materiwhich the principal are: First, that materials suitable for the manufacture of excellent iron do exist; second, that while, in some of the localities chosen, the manufacture could not possibly have been conducted with sucin others the conditions were more fa vorable, and that, in consequence of the formation so obtained, no hesitation need be felt in the selection of the best of localities hereafter should the industry be again started; third, that the iron produced at one lo-cality will be applicable only to certain special purposes, and that from the sameness of the materials employed, iron, but of a limited number of varieties, can be pro-duced; fourth, that the margin of profit upon local manufacture will, under the favorable circumstances, be a very narrow one—so narrow as to be subject to be swept away with the oscillations in prices in the English market.

Of the other metals found in India, besides those above mentioned, the most important are platinum, cobalt, manganese and chro-mium. The occurrence of mercury is doubtful. Salt has hitherto enjoyed the position of being, in reference to the Indian revenue, by far the most important mineral production the salt tax yielding an annual income of about \$35,000,000. It appears that an en-larged system of mining would be of incalculable benefit to the native community, and would afford suitable means of employment for a rapidly increasing class, whose future should be a matter of grave concern to the Indian authorities.

Petroleum Wells in Russia.

The increasing importance of the petroleum wells of Baku, on the Caspian Sea, has led to a project being set on foot for connecting this place with Batoum, on the Black Sea, by means of pipes in order to avoid the difficulties and dangers of the railway transportation of the oil. It is proposed to pump the petroleum into tank steamers at Batoum, and very sanguine expectations are enter-tained as to the possibility of successfully competing with the American petroleum imported into Europe. The Baku oil territory is described as having an area of not less than 1200 square miles. Its elevation above the level of the Caspian Sea varies greatly The Caspian is 86 feet below the level of the The general aspect of this region is ocean. that of a barren desert, deprived of water and vegetation, checkered here and there with dried-up salt lakes, natural outflows and pools of oil, gas wells and exhausted mud vol-canoes. Even on the surface of the Caspian natural outflows of petroleum and gas may be seen at certain places. The boring opera-tions are mostly carried out on the peninsula requirements of railways which may pass in their vicinity, and of manufacturing establishments, which will probably be more generally distributed in the near future.

True peat is found only on the lofty plantary outflows of petroleum and gas may be seen at certain places. The boring operations are mostly carried out on the peninsula of Aspheron, where the potential productiveness is considered to be much greater than that of our petroleum regions. Comparing the results achieved in the two countries on the one side and the average depth and total number of wells on the other, it is stated that the natural petroloum riches of Baku have no parallel in the world. The lands are partly purchased and partly held by lease.
The former comprise 650 desetines, or 1836 acres, sold by the Crown to different parties by public auction for the sum of about \$1,500,000. For certain plots as much as \$17,500 per acre has been paid. The yearly rent for leased Crown land is only about \$1.87 per acre. These lands were supposed to be worthless at the time, but the contrary has been proven time, but the contrary has been proven since, and they now form a subject of wild peculation among the numerous moneyless areholders very detrimental to legitimate busin ss. A tract of the most valuable petroleum land, with an area of 270 acres, has been granted to a certain number of high officials as a token of imperial favor. In 1873 the number of wells sunk by way of drilling was 17. The total number now is above 375. The average depth of borings is 350 feet; the deepest well, 637 feet, with a above 375. The average depth of borings is port has been named rarkeston. The dock 550 feet; the deepest well, 637 feet, with a list 1800 feet long, and is provided with diameter of from 10 inches to 14 inches. Warehouses 1400 feet long and 60 feet broad. The erection of a railway station natural causes is comparatively small, but a great many wells are abandoned for want of contemplated, and Parkeston will in the great many wells are abandoned for want of neans or skill to continue the boring, or still

Argentiferous ore: occur in many parts of of common occurrence. The total quantity the prince the country, and some of them contain high produced in 1873 was 500,000 barrels, and in Britain.

2. Reheated Iron.—Two and one-half-inch eleated slabs, nicked on one side and bent several of the older Indian formations, being ooo, besides immense quantities of crude peold, showed tough and fibrous. Bent cold 000, besides immense quantities of crude petroleum, which was wasted at the place of production for want of adequate means of tankage and transportation. The export of the different petroleum products from Baku by sea amounted to 2,946,000 barrels in 1881, against 1,702,200 in 1879. It will thus be seen that the output has been steadily increasing, and it is not improbable that the special inducements offered by a pipe connection between Baku and Batoum will lend an additional stimulus to the already extensive industry.

> French Trade for Seven Months .-The commerce of France shows a slight improvement. According to the Board of Trade returns just published, exports as well as imports have increased considerably during the past seven months. The table is worth quoting :

1	MPORTS.	
Food stuffs	1382, Francs, 921,802,000 1,337,678,000 401,605,000 162,817,000	1881. Francs. 1,004,825,000 1,283,859,000 307,858,000 149,460,000
Total	2,825,902,000 EXPORTS.	2,746,002,000
Food stuffs	1832. Francs. 478.083,000 363,687,000 1,056,079,000 94,480,000	1881. Francs. 473,429,000 342,223,000 919,217,000 98,581,000

... 2,022,020,000 It will be seen from these figures that, if the total imports exceeded the exports by more than 800,000,000 francs during the seven months of the present year, the excess during the same period of last year was as much as 913,000,000 francs. This is a small amelioration, chiefly due, however to the good harvest. At the same time it must be noticed that, while the imports of manufactured goods rose from 307,000,000 francs in 1881 to 401,000,000 francs in 1882, the exports from the same articles increased from 919,000,000 francs to 1,056,000,000 francs. The returns on the whole are favorable, but it must be borne in mind that the working of the new treaty régime has not yet had time to make its effect fully felt.

Telegraphy in Japan.-The Japanese telegraph net which was commened in 1871, embraced at the beginning of last year 3329 miles of road, and 9345 miles of wire. The total number of telegrams forwarded during total number of telegrams forwarded during the year amounted to 1,272,756, of which 96 per cent. were written in the Japanese tongue. Japanese having no alphabet of in-dividual letters, it has been necessary for telegraphic purposes to make up combina-tions of Morse characters, representing the sounds of each of the syllables contained in the so-called Katakana. For this purpose letters of the international code have been used, and been supplemented by others made up of fine dots and strokes, which represent a total of 47 signs, minus the figures. The alphabet that had been formed in that way answered well enough for about eight years. The young Japanese operators, who are now taken from a school of telegraphy, are taught to speak and write English and French, and generally receive a primary education similar to that given in England. The average charge for the conveyance of go. and. The average charge for the conveyance of 20 Japanese characters over a distance of 60 miles is somewhat less than 2 cents. In 1880 there were open to the public 112 offices, besides which there were 70 in connection with the various departments of the State, the railways and the police stations. There are now in use 343 Morse apparatus, 26 Block instruments with I needle and 20 telephones of the T. with I needle, and 29 telephones on the Bell system. In the school of telegraphy there are 71 instruments of various descriptions for practicing purposes, and in the Straits of Shimonoski 5 cables have been laid.

Coal in Sweden.-In Sweden coal has as yet been met with only in the most south-ern province, Scania, and that only at two points at which the deposits have been worked, with long interruptions, since the middle of the Eighteenth Century. At Hoganas, in the neighborhood of the point for a long time considered as the northern limit of the coal district of Scania, the extraction of coal, commenced in 1707, has been the most remunerative. Two seams have been worked, one at a depth varying, according to a regular dip, from about 10 to 196 feet, and from 6 to 17 inches thick, the other being about 79 feet lower and 4 feet 8 inches thick. Swedish engineers acknowledge that they are not thoroughly acquainted with the extent of this coal formation, though numerous tent of tris coal formation, though numerous bore-holes have been put down and shafts sunk. The measures contain coal of inferior quality, as well as fire-clay, the working of which is highly remunerative. In 1876 there were in Sweden seven centers of working, and in the present year there are 12; yet, notwithstanding the progress made in min-ing, importations of coal and coke from forion sources continue to increase at a consid-

The growing importance of Antwerp for The growing importance of Antwerp for the English and Continental passenger and freight traffic has led to the foundation of what will ultimately be a new town in the county of Sussex, England. The present accommodations at Harwich have been found inadequate for the increasing trade and the Great Eastern Railway Company have consequently erected a splendid new dock about three-quarters of a mile from Harwich, where its vessels will land passengers and freight in the future. The new port has been named Parkeston. The dock means or skill to continue the boring, or still more frequently on account of the extremely low price of crude petroleum.

Flowing wells, yielding from 2000 to 4000

Flowing wells, yielding from 2000 to 4000 Flowing wells, yielding from 2000 to 4000 in rth of England and the Continent, will barrels (eight poods or forty gallons to the barrel) daily, and pumping wells yielding certain extension lines which will bring the from 300 to 600 barrels daily are said to be port in direct communication with some of of common occurrence. The total quantity

TABULATED RESULTS OBTAINED WITH SINGLE AND DOUBLE REFINED ROLLED BARS.

[Bars from the Elmira Iron and Steel Rolling Mill Company; distinguishing letter, L. Bars from the Passaic Rolling Mill Company; distinguishing letter, S.]

Test.	Bar.		Dime	nsions,	d Area.	Limit per re inch.	nate Strength square inch.	on in 80 nes.	Contraction of Area,	Assessment of Francisco
No. of	Mark on	Kind of Iron.	Width.	Thick- ness.	Sectional	Elastic Li square	U.timate per squa	Elongation inches.	Contra of A	Appearance of Fracture.
			Inches.	Inches.	Sq. in.	Pounds.	Pounds.	Per cent.	Per cent.	_
	L x	Single refined	3.03	1.01	3.06	28,500	52,710	18.4	33.3	Fibrous, 95 %; granular, 5
73	T. a	Single refined	3.03	8.08	3.66	29 500	53,630	16.4	36.0	Fibrous, 92 %; granular, 8
74	T. a	Single refined	3.03	I.OF	3.06	29 000	52,090	21.4	34.6	Fibrous, 95 5; granular, 5
75	T. 3	Single refined	3.03	I.OI	3.06	29,000	51,440	15.0	20.3	Fibrous, 90 %; granular, 10
76	Laci	Double refined	3.03	1.01	3.06	29,000	53 500	15.3	37.9	Fibrous, 100 %.
7	L 202	Double refined .	3.03	T.OT	3.06	30,000	52,650	16.2	ac.6	Fibrous, 8; \$: granular, 15
7	L 20%	Doubl : refined	3.03	NO.	3,06	32,500	53,500	16.5	27.5	Fibrous, 100 %.
71	L 204	Pouble refined	3.03	1.01	3.06	32,500	54.480	15-4	24 8	Fibrous, 100 %.
72	L	Single refined	5.05	1.28	6.46	27,500	50,500	14.5	27 6	Fibrous, 95 %; granular, 5
3	L 6	Single refined	5.04	1.27	6.40	37,500	50,530	17.3	22.3	Fibrons, 70 %; granular, 30
4		Single refined	5.03	1.27	6.30	27,000	50,200	18.0	22.5	Fibrous, 95 %; granular, s
5	L 205	Double refined	5.03	1.26	6.33	27,000	51,230	17.8	34.2	Fibrous, 80 %; granular, 20
		Double refined	5.03	1.26	6.34	27,500	50,500	17.6	27.1	Fibrous; slightly granular.
8		Double refined	5.03	1.26	6.34	27,000	51.030	21.4	37.9	Fibrous : slightly granular.
9	8 11	Single refined	3.05	V.OE	3.08	28,500	48,640	83.3	24.3	Fibrous ; slightly granular.
1	8 12	Single refined	3.05	N.OK	3.08	28,000	50,390	16.9	35.8	Fibrous, 100 %.
	8 13	Single refined	3.05	1.00	3.05	28,500	47,050	0.0	22.0	Fibrous, 100 %.
)2	8 211	Double refined	3.05	1.00	3.05	29,500	51.150	22.0	31.5	Fibrous, 100 %.
3	S 212	Double refined	3.05	X.00	3.05	28,500	51.110	22.0	36.1	Fibrous, 100 %.
4	8 213	Double refined	3.05	1.02	3.11	29,500	51,860	22.5	39.2	Fibrous, 100 %.
5	8 25	Single refined	5.08	1.26	6.49	26,000	49.700	17.1	19.2	Fibrous, 85 %; granular, 15
0	8 16	Single refined	5.08	1.26	6.40	24,000	49,280	35.7	17.7	Fibrous, 85 %; granular, 15
1	8 17	Single refinea	5.09	1.26	6 41	24,500	48,740	14.3	17.3	Fibrous, 80 %; granular, 20
2	8 215	Double refined	5.05	1.25	6.31	27.500	50,980	19.1	23.6	Fibrous, 95 %; granular, 5 %.
3	6 006	Double refined.	5.06	1.26	6.38	27,000	50,770	20.7	29.6	Fibrous, 100 %.
04	& are	Double refined	5.06	1 25	6.33	27,000	51,340	19.3	35.2	Fibrous, 100 %,

iron.
In some mills muck iron is called No. 1 iron; single-refined iron, No. 2; double-refined iron, No. 3; extra-refined iron, No. 2 and No. 3 mixed.

IRON L .- ELMIRA IRON AND STHEL ROLLING MILL CO.

 Ores and Pig Iron.—The pig iron from which iron L is made is from blast furnace which iron L is made is from blast furnace under same management as the rolling mill. The ores are: Jefferson, N. Y., Lake Superior, Center County, Pennsylvania, Champlain. Thus the pig at puddling furnace is all of the same character, the mixing being done at blast furnace. The only distinction made at puddling furnace is the grade of the pig, due to the different periods of the same cast.

2. Muck Iron.—Puddling furnace lined with blocks of Port Henry ore. Fixing paste

with blocks of Port Henry ore. Fixing paste composed of about one part Humboldt ore to four parts Lake Superior. Puddle balls al-

composed of about one part Humboldt ore to four parts Lake Superior. Puddle balls always shingled, except during repairs, when Burden squeezer used. The resulting muck bar is piled in yard without any distinction as to quality. Usual sizes, 3 x ¾, 4 x ¾ inches; special sizes, 6 x ¾, 7 x ¾ inches.

3. Reheated Iron.—The piles for forming 3-inch and 4-inch reheated-iron slabs were 6 inches wide, 7 inches high over all, 29 inches long, and formed entirely of muck iron; eight layers high, each of two 3 x ¾ inch muck slabs. The piles remained about 1 hour and 30 minutes in the heating furnace (soft coal) and passed through rolls (2 high, 18-inch train) in 2½ minutes, receiving 11 reductions (2 rough box, 5 rough gothic, 4 flat finishing) in 13 passes. The piles for forming 6-inch and 7-inch reheated-iron slabs were 7 inches wide, 7 inches high, 29 inches long, and formed entirely of muck iron; eight layers

inches wide, 7 inches high, 29 inches long, and formed entirely of muck iron; eight layers high, each of 3-inch and 4-inch muck slabs, lapped. The thickness of reheatediron slabs averaged ½ inch full.

4. Extra-Refined Iron.—(a.) Four test bars 3 x 1 inches x 10 feet; mark: L 1, 2, 3, 4.—Piles 7 inches wide, 7 inches high, 21 inches long; 9 layers high, tops and bottoms 7-inch reheated slabs; intermediates, 3-inch and 4-inch muck slabs, lapped. Time in furnees, 1 hour 10 minutes. Time in rolls. furnace, I hour to minutes. Time in rolls, in furnace, I hour to minutes. This in rois, 3 minutes: 12 reductions (2 rough box, 6 rough gothic, 4 flat finishing) in 14 passes. (b.) Three test bars 5 x 1 1/4 inches x 10 feet; mark: L 5, 6, 7.—Piles 7 inches wide, 8 mark: L 5, 6, 7.—Piles 7 inches wide, 8 inches high, 54 inches long; 10 layers high, tops and bottoms 7-inch reheated slabs; in-termediates, 2-inch and 4-inch muck slabs, lapped. Time in furnace, I hour 10 minutes. Time in rolls, 3½ minutes; 9 reductions (2 rough box, 2 rough gothic, 3 box, 2 flat finishing) in 13 passes.
5. Double-Refined Iron.—(a.) Four test

5. Double-Reined Iron.—(a.) Four test bars 3 x 1 inches x 10 feet; mark: L 201, 202, 203, 204.—Piles 7 inches wide, 7 inches high, 21 inches long; 9 layers high, entirely of reheated iron, tops and bottoms 7-inch reheated slabs; intermediates, 3-inch and 4-inch reheated slabs, lapped. Time in furtilization of the company of the compan nace, I hour 5 minutes. Time in rolls, 2 minutes; 12 reductions (2 rough box, Time in rolls, 21/4 rough gothic, 4 flat finishing) in 14 passes.
(b.) Three test bars 5 x 1½ inches x 10 feet;
mark: L 205, 206, 207.—Piles 7 inches
wide, 8½ inches high, 54 inches long;
10 layers high, entirely of reheated iron, tops wide, 834 inches high, 54 inches long; 10 layers high, entirely of reheated iron, tops and bottoms 7-inch reheated slabs; intermediates, 3-inch and 4-inch reheated slabs, lapped. Time in furnace, I hour 15 minutes.

32 inches long; 8 layers high; tops and bottoms, 8-inch reheated slabs; intermediate layers of one 3½-inch and two 2½-inch muck slabs, lapped. Time in furnace, 1 hour 35 minutes; time in rolls, 234 minutes; 10 reductions (6 rough box, 4 flat finishing)

reheated iron; tops and bottoms, 6-inch reheated slabs; intermediates, 2½-inch and heated slabs; intermediates, 2½-inch and 3½-inch reheated slabs, lapped. Time in furnace, 1 hour 15 minutes; time in rolls,—; 11 reductions (7 rough gothic, 4 flat finishing) in 12 passes. (b.) Three test bars 5 x 1½ inches x 10 feet; mark: S 215, 216, 217.—Piles, 8 inches wide, 8 inches high, 32 inches large, 8 largers high cathering. inches long; 8 layers high, entirely of re-hea ed iron; tops and bottoms, 8-inch reheated slabs; intermediates, 6-inch and 21/2. reheated slabs, lapped. Time in furnace, 1 hour 45 minutes; time in rolls, 2 minutes 45 seconds; 10 reductions (6 rough box, 4 flat finishing) in II passes

The following is the account given in the report of the nicking and bending tests of muck and reheated slabs at mills:

IRON L .- ELMIRA IRON AND STEEL ROLLING

MILL CO.

1. Muck Iron.—Three-inch muck slabs, nicked lightly on one side and bent back cold by blows of a sledge, showed average fracture, ¾ fibrous, ¼ fine crystallinic. fracture, % fibrous, % fine cking skin cracked at 45°, crack opened and tore acros face at 90°, broke clean open at 135°, and flattened down on itself, showed very tough, tenacious material; fracture fibrous, with rystallinic spots and streaks.

2. Reheated Iron,—Three-inch reheated slabs, nicked light on one side and bent old, showed mainly fibrous, interspersed with crystallinic streaks and spots. Same bars bent cold without nicking, skin eracked at 90°, crack widened and broke across face at 160°, flattened down on itself, showed at 100, nattened down on itself, showed very tough fracture, fibrous mainly. Four-inch reheated slabs, nicked light on one side and bent cold, showed tough, fibrous, with crystallinic streaks on nicked side. Same bars bent cold without nicking showed tough, no signs of cracking at 120°; test bandoned. Seven-inch reheated slabs (taken from stock), nicked light on one side and cold, showed fibrous in general, but bent cold, showed fibrous in general, but with distinct streaks of crystallinic material. Bent cold without nicking, skin cracked at 45°, crack opened and widened at 90°, broke completely down at 120°.

IRON 8. (PASSAIC ROLLING MILL CO.) 1. Muck Iron.—Two and one-half-inch muck slabs, nicked on one side, light and bent cold, snapped off and showed nearly throughout fine crystallinic fracture, with a w fibrous streaks. Bent cold without nicking, snapped short off at 30°; fracture over one-half fine crystallinic, remainder fibrous streaks and spots. Three and one-half-inch muck slabs, nicked on one side and bent cold, showed fibrous interspersed with crystallinic places. Bent cold without nicking, cracked open at 20°, broke short off at 45°;

fracture fibrous, with crystallinic places.

the definite iron is rolled is all reheated firon.

In some mills muck iron is called No. 1
In some mills muck iron, No. 2; doubleiron; single-refined iron, No. 3; extra-refined iron, No. 1

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In some cious stones were to be found. It is, how ever, not in this direction alone that the country is of importance, numerous coal, iron, gold, silver, copper, zinc, and other deposits being of frequent occurrence. Mr. Ball estimates the exact number of distinc in II. passes.

5. Double-refined Iron. (a.) Three test bars 3 x 1 inch x 10 feet; mark: S 211, 212, not of equal force in all cases, applying in 213.—Piles, 6 inches wide, 6½ inches high, 25 inches long; 7 layers high, entirely of gins of basins of sedimentary rocks. A very small number of these deposits are worked, and considerable portions of Madras and Bombay will probably continue to draw their supplies from foreign sources, since Bengal coal from Calcutta, owing to its inferior heating powers, is unable to compete successfully with foreign coal at the above mentioned places, while the cost of inland carriage procludes these ports from drawing their supplies from the fields adjacent to them. In Bengal and the Central Provinces, on the other hand, a considerable development of the coal fields is possible, although the construction of railways to the distant inland basins of Western Bengal and Rewah, simply with the view of bringing more coal to the ports and manufacturing centers, would, without doubt, be found unprofitable. The use of such inland deposits, therefore, must for many years be confined to supplying the supplies from foreign sources, since Bengal for many years be confined to supplying the

> teau of the Nilgiris, and in some of the Himalayan regions. Accumlations of vege-Himalayan regions. Accumulations of the Himalayan regions. Accumulations of vege-table matter in certain of the low and swampy parts of the country, to which the term has sometimes been applied, have no just claim to the title, and are practically useless as fuel. The sources of petroleum are situated wholly in extra peninsular regions—in the Punjab, in Assam, and in Burma. The total yield from all the springs in the Punjab is not considerable, and in many cases is not worth the cost of colle Mr. Symon's estimate of the possible tion. Mr. Symon's estimate of the possible yield of petroleum in the Punjab, which he arrived at after an examination of all, or nearly all, the springs, was that they might be calculated to yield 100 gallons a day for be calculated to yield 100 gallons a day for eight years, after which the supply would probably fail. Since that time gas works have been established in which the oil ob-tained is manufactured into gas at the rate of 320 cubic feet per gallon. The lighting power of this gas is said to be equal to from power of this gas is said to be equal to from 14 to 15 candles. The petroleum of Assam has attracted notice for many years, but hitherto attempts to work it have not been hitherto attempts to work it have not been successful as commercial speculations. The failure, however, seems to be due to causes other than those attributable to the defects in the quality or quantity of the substance itself. Although large quantities of gold have been raised from Indian soil, and though the deposit by though the deposits have probably not de-creased in value, the profitable character of the industry appears extremely doubtful, as shown by the poverty reigning among the indigenous gol l washers.

> Argentiferous ore; occur in many parts of

United States Association of Charcoal Ironworkers.—There is every indica-tion that the third annual meeting of the above association, which convenes in Chattanooga on October 18, will be the largest and most successful gathering yet held of those who make and use charcoal iron. The local committee are arranging an attractive and instructive programme, which will in-clude visits to iron works and mines in Tennessee, Georgia and Alabama. Some papers on topics of interest are already announced, and it is expected that the present list will be largely increased by others, of which no notice has yet been given. The leading in-dustries of Chattanooga, Birmingham and vicinity, and nearly all of the ore mines, blast furnaces and other manufacturing concerns on the lines of the Alabama and Great Southern, Louisville and Nashville, East Tennessee, Virginia and Georgia, and Western and Atlantic railroads, will be vis-ited. It is understood that all the excursions are tendered complimentary to the association. Those who are familiar with the region embraced in the excursions will realize how much of interest and value is to be seen. The extent and quality of the ore deposits, the wealth of mineral fuel and excellent timber, the number of furnace plants and the increase of railway facilities will surprise those who have never seen what has become known as the Chattanooga district. The attractive features of the meeting are well calculated to insure a large gathering, and those who attend will un-doubtedly be well pleased with the different proceedings.

Pennsylvania's Bi-Centennial.—The Iron Committee of the Bi-Centennial Association of Pennsylvania are appealing to the iron and steel manufacturers and consumers of Philadelphia and Eastern Pennsylvania fo of Philadelphia and Eastern Pennsylvania for subscriptions toward the expenses of the "trades' display," which is to take place on October 25. The expense of the various dis-play is estimated at about \$100,000, and of this sum the "Iron Committee" are desirous this sum the "Iron Committee" are desirous of raising from \$12,000 to \$15,000. The iron industries will take a very prominent part in the trades' display, and as these industries have formed so conspicuous a part in the progress and welfare of the State, manufacturers and others are strongly urged by this committee to give generously to the fund. The committee is composed of 30 of the strongly undertaken the progress of the strongly undertaken and the strongly under the strongly u the most prominent manufacturers of the city and places outside. Mr. Andrew Wheeler, 400 Chestnut street, Philadelphia, is chairman of the committee.

A new test for gold leaf was accidentally discovered at the Farrell Venetian Art Glass Manufacturing Company's works in Brook-lyn. By the Farrell process the leaf is placed on the incandescent glass, which is then blown. The expansion splits the leaf into beautiful and fantastic forms, and the object is then fired. In using a guaranteed .999 quality of gold leaf the workman found that the expansion separated the gold from a copper alloy, and the object was orna-mented with gold and a handsome green, the latter color being due to the oxidation of the copper.

An Italian Government commissioner has just returned from the Valle d'Aosta, where he has been examining the iron produced there, and reports that the quality is so good that it can be employed in the construction of men-of-war without its being necessary have recourse to foreign countries; also that the works situated in the Valle d'Aosta, in the largest of which 4000 operatives are employed, can furnish all the iron wanted.

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We desire to call attention of proprietors and superintendents of the above to the superiority

De-Oxydized Bronze Tuyeres.

The density of the metal causes it to give better results, and so last longer than Phosphor Bronze or any other alloy of copper and tin. We refer to

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WANTED.—Position with rolling mill, either ire or steel or nail factory. Has had large experence in the alse of iron, steel and nails; is thorough acquaint from the steel of iron, steel and nails; is thorough acquaint iron, steel, nails, bother plates and she are of the steel o Would accept position in charge of corre-pondena and sales, in office, or would accept management obranch house or agency in western or eastern city, would travel. Satisfactory reasons for dealing telauge. Address, ... IR(1)N AND STEEL, ... Office of The Iron Age, 8s Readed 8s., New York.

PMPLOYMENT WANTED.—Have is years' experience in business and practical management of men and machinery in Iron Manufacturing, Bookkeeping and Sales. Have also very extensive knowledge of Patents and Patent Law and excellent business acquaintance. Moderate

and excellent salary. Best references.
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Station G., Brooklyn.

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Screw Planer, 34 in. x 14 ft.
Engine Lathe, 22 in. x 12 ft. Nev
Engine Lathe, 16 in. x 16 ft. Blai
Engine Lathe, 16 in. x 6 ft. Woo
Engine Lathe, 13 in. x 5 ft.
Lathes, 14 in. x 4 ft. 6 in.
Lathe, 14 in. x 4 ft. 6 in.
Lathe, 12 in. x 5 ft.
Hench Lathe, 17 in. x 3 ft. 6 in.
Pratt & Whitney Gear Cutters.
Profile Machine. One Profile Machine.
One Wood & Light Milling Machine, No. 4.
One large Index Milling Machine.
One Ames, 4 Spindle Drill.
One Daniels Planing Machine. One Daniels Planing Machine.
One Daniels Planing Machine.
One Daniels Planing Machine.
One Burleigh Rock Drill, No. 4. New.
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One Woodward Pump, No. 3. New.
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One Horizontal Engine, 14 in. x 24 in.
Two Horizontal Engine, 6 in. x 8 in.
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Having extensive facilities and connections, we are prepared to introduce new goods, especially in the line of

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and would invite manufacturers to confer with our New York office, where full information will

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A business firm, well established in the West desires to act as agents for manufacturers of Brass and Iron Goods, Machinists' and Plumbers Supplies, Tools, Metals, Crucibles, Steam Packing, &c., &c. Will buy good patents or manufacture on royalty. Address, Office of The Iron Age, 38 Clark St., Chicago, Ill.

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Partner or manager for Philadelphia house of a well established iron importing firm. A wellknown Philadelphian with good Western conne tions preferred.

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A young man with 15 years' experience in Hardware and can command \$4000, would like partnership in some established Hardware House; or he would accept a position with some good house. Best of references furnished.

Address C. O. F. BROWN,
Cadix, Ohio,
Care Farmers' and Mechanics' National Bank.

CORRESPONDENCE IS SOLICITED

with parties having

MACHINERY TO BUILD. Heavy work preferred.

THE HARTFORD ENGINEERING CO. Hartford, Conn.

The machinery complete of a plate and sheet mill. Machinery modern, ready to set up and in

To Lease.

good order. THOS. R. McKILLIP, Address, 130 Dearborn Street, Chicago, Ill.

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The undersigned is at present foreman of a large foundry in the West, and desires to change his position by January 1st. Is fully competent to take entire charge of all branches connected with foundry business, except machine work.

Address, J. H. S.,
Office of The Iron Age, & Reade St., New York.

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Firm of Ar standing and connection in London the metal trades, is open to accept buying or Apply first to F. B. LITTLEJOHN, 171 Broadway, Room 10

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To Brass Manufacturers. Our new foot press, for cutting off GATES from brass castings by FOOT power, is now ready. Weight, 22: bls. Price complete. 8549, nes. A boy can operate it easily. We warrant them to give the most perfect satisfaction. FEERLESS PUNCH AND SHEAR CO. 38 W. Dey Street, New York.

WANTED.—A situation as foreman by a practical foundryman. Have had large experience on bench and light floor work. Best of reference from present employers.

Address, FOREMAN,

Office of The Iron Age, \$2 Reads St., N. Y.

DRILL PRESS FOR SALE—New Upright Power Definition wanted as Steel Manager, 20 years or Definitions, we will be perfected as steel Manager, 20 years or Definition, steel spindle, superior finish; weight, return motion, steel spindle, superior finish; weight, offert price, \$116.

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25 W. Dey St. New York.

Position wanted as Steel Manager, 20 years or general representation of the Roller or Master Mechanic of Steel Rolling Roller or Master Mechanic of Steel Rolling Mill. Address WM. WILSON, Peer Office Box 0, Middletown, N. Y.

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Three Engine Lathes, 20 in. x 16 ft. Ames. New.
Three Engine Lathes, 20 in. x 16 ft. Ames. New.
One Engine Lathes, 20 in. x 16 ft. Ames. New.
One Engine Lathes, 10 in. x 16 ft. Ames. New.
One Cod order.
One Engine Lathes, 10 in. x 67.8 ft. Bridgeport Mch.
Tool Works, New.
Six Engine Lathes, 16 in. x 6 ft. 7 ft x 8 ft. Ames. New.
One Engine Lathes, 16 in. x 6 ft. with Turret. Flathers.
New. Tool Works, New.
Six Engine Lathes, 16 in. x 6 ft. 7 ft x 8 ft. Ames. New.
One Engine Lathes, 15 in. x 6 ft. with Turret. Flathers.
New.
Two Engine Lathes, 14 in. x 6 ft. Star Tool Co. New
Six Engine Lathes, 13 in. x 6 ft. Ames. New.
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One Chucking Lathe, 24 in. x 6 in. a 36 in. New.
One Crank Planer, 12 in. Beides. Sew.
One Planer, 24 in. x 6 ft. Good order.
One Planer, 24 in. x 6 ft. Ames. New.
One Planer, 24 in. x 6 ft. Ames. New.
One Planer, 24 in. x 6 ft. Ames. New.
One Planer, 25 in. x 10 ft. Second hand. Good order,
One 5 in. Stroke Shapers. Hendey. New.
One 15 in. Stroke Shapers. Hendey. New.
One 15 in. Stroke Shaper. Hendey. New.
One 24 in. Stroke Shaper. Hendey. New.
One 25 in. Stroke Shaper. G. & E. New.
One Screw Machine. No. 2. P. & W.
One Screw Machine. No. 4. Pratit & Whitney.
One 20 in. Upright Drill. Prentiss. New.
One 20 in. Upright Drill. No. 1. Pratit & Whitney.
One 20 in. Upright Drill. No. 1. Pratit & Whitney.
One 20 in. Upright Drill. Prentiss. New.
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One 20 in. Upright Drill. New Awen. New.
Three Sensitive Drills. Prentiss. New.
One 20 in. Upright Drill. New Awen. New.
Three Sensitive Drills. Prentiss. New.
One 20 in. Upright Drill. New Awen. New.
Three Sensitive Drills. Prentiss. New.
One 20 in. Upright Drill. New Awen. New.
Three Sensitive Drills. Prentiss. New.
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One

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Wanted. A thoroughly practical and experienced man in the Lock trade, to travel in New York and New

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Chicago, Ill. To Let or Lease, With or Witrout Power. One large room on ground floor of well-lighted brick building, foot of East 117th street, \$4350; rent, \$500. Also, first and second floors, together or separately, in same building, 45x16 each; rents, \$250 and \$200 respectively. Also, 4 to 8 lots of ground and good stone pier, well suited for landing and storage of building or other material or manufacturing purposes. The whole property will be let together or separately on terms to suit. Inquire at Faint Factory, 116th st., East River.

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88 in. triple gear-d doct to suite. Fitchburg.

28 in. swing, 18 foot bed. Fitchburg.

26 in. swing, 18 mod foot bed.

26 in. swing, 18 mod foot bed.

26 in. swing, 12 foot bed. Fitchburg.

26 in. swing, 12 foot bed. Fitchburg.

27 in. swing, 10 and 12 foot bed. Baladell.

17 in. swing, 6 and 8 foot bed. Fitchburg.

14 in. swing, 6 and 8 foot bed. Fitchburg.

13 in. swing, 6 and 8 foot bed. Blaidell.

No. 2 Cabinet Turrett Lathe, 18 in. by 6 ft.

No. 18 Q. Arbor Fox Lathe, 18 in. by 6 ft.

No. 2 and 3 Fox Brass Lathes.

PLANERS, SHAPERS & SLOTTERS.

30 in. x 36 in. x 9 foot Planer (2d hand; goe Wheeler, 30 in. x 36 in. x 8 foot Planer. Fitchburg, 25 in. x 36 in. x 8 foot Planer. Wheeler, 25 in. x 5; in. x 5 in. x 8 foot Planer. Wheeler, 22 in. x 20 in. x 4 foot Planer. Wheeler, 12 in. x 50 in. x 6 foot de Eberhardt, 10 in. stroke Shaper. Gould & Eberhardt, 10 in. stroke Shaper. Fitchburg, 12 in. Slotter (2wing 56 in.) Hewes & Phillips. DRILL PRESSES.

DRILL PRESSES.

48 in. Radial Drill, double-geared, self-feed, slotted and planed bed. Betts.

30 in. back geared, automatic. Prentice.

25 in. bacs-geared, self-feed. Fitcaburg.

25 in. quick return. Blaisdell.

10 in. quick return. Blaisdell.

18 in. quick return. Fitcaburg & Blaisdell.

2, 3 and 4 spindle drills. Garvins.

No. 2(\$\frac{2}{3}\$ x 1\frac{2}{3}\$ Bolt Cutters. Merriman's.

Power and Hand Milers. Garvins.

These tools are on hand and for quick delivery.

KELLY & LUDWIG.

49 and 51 North 7th St., PHILADELPHIA, PA.

WE OFFER OUR CLEANED HORSENAIL SCRAPS,

Quite free from scale and dust, and warranted of the very best SWEDISH CHARCOAL IRON.

For continual supplies of about 50 tons per month.

MOELLER & SCHREIBER, Manufacturers of Machine-Forged Horsenails BEHLIN, N., GERMANY.

FOR SALE AT A BARGAIN.

The Canistoga Lock Works, consisting of com-plete sets of Brass Patterns, five sizes. Machinery adapted for their manufacture, stock and good will, Satisfactory reasons for quitting. Call on or address. or address EZRA F. LANDIS,

For Sale, Cheap.

One Power Drop Press, suitable for Sheet Metal r Drop Forgings; will strike a light or heavy low. Now running. Will trade for Drill Press.

R. C. PURVIS. Rear 407 Cherry Street, Philadelphia.

Machinery For Sale. (ALL NEW). Machinery For Sale, (ALL NEW).
One 20-in. Power Drill Press. Three 20-in. Davis
Power Drill Presses. Six Hand Blacksmith Drills
Three Gear Cutting Attachments for Lathes.
Twelve Assorted Chucks, 4 in, to 18 in. One Bolt
Cutter, 14 in, to 14 in. Three Barnes Lathes. Six
Hand Shearing and Punching Machines. Two Sturtevant Blowers. Also, one second-hand Horizontal Engine, 12 x 24. One second-hand HorizonEngine to x 16.

16 and 18 S. Howard S., Baltimore.

For Sale.

MACHINES With Dies Complete, for making Axes, Picks Mattocks and Hammers, with solid punched eyes. Address, T. & CO.,

Office of The Iron Age, 83 Reade St., New York.

For Sale.

4 Planers, 33 in. x 36 in. x 7½ ft.; 38 in. x 36 in. x 10 ft.; 24 in. x 24 in. x 56 ft.

Engine Lathee, 12 in. x 6 ft.; 18 in. x 10 ft.; 20 in. x 11 ft.; 23 in. x 10 ft.; 24 in. x 16 ft.; 30 in. x 5 ft. Rod feed.

Column Drills, 14 in., 30 in., Ferris & Miles; 45 in., Sellers & Co.

Schlensker & Colt Cutter, small Shaper, Planer Chuck, Planer Centers. &c. Planer Centers, &c.
Description and prices on application.
A. G. BROOKS & WINEBRENER,
261 N. 3d St., Philadely

For Sale.

Machine Shop and Foundry, with Tools and Patterns, having large run of custom work, as well as permanent contract work in foundry; in a town of ro, oco inhabitants in Central Ohic. Near-est shop 20 miles distant.

Proprietor in other business.

FOR SALE-BUSINESS.

A well established Hardware, Stove and Tin ware business in a live town, in Western New York; also a complete set of Tinners' Machines and Tools, which will be sold separate if desired Satisfactory reason for selling.

For particulars address.

HARDWARE'

P. O. Box 58, Sherman, N. Y.

For Sale.

35 Horse Portable Engine and Boiler, in excel-lent condition, with governor, grates and smoke stack; shell of boiler \$6 in. thick; weight complete, 10,000 lbs. price, \$825. Also, 6, 8, 10, 12, 15, 18 and s; horse-power engines. Boilers, pumps and other machinery at low prices.

S. M. YORK, Cleveland, O.

Rare Chance.

WANTED—An energetic, experienced man to extend business and purchase retiring senior partner's interest in Foundry and Manufacturing concern, engaged in general foundry work and manufacture of special lines of Hardware, &c. Business well established, location very best, near R. R. and shipping. Rare chance for right man.

Address, F, Box 237, Norwalk, Ct.

25-Inch Lathes.

A lot of 25-inch lathes designed to equal the best

Special Notices.

For Sale.

A Large Lot of Machinists' Tools, Pipe Machines, Engines and Boilers, &c., ntents of the Girard Tube and Iron Company, in

ots to su't purchasers, consisting in part of the fol One 18 in. Cyl., 30 in. Stroke Engine, Corliss Pattern.

One 19 In. Cyl., 30 In. Stroke Engine, Corlias Patte One 14 In. Cyl., 30 In. Stroke Engine, Silde Valve, One 13 In. Cyl., 35 In. Stroke Engine, Silde Valve, One 12 In. Cyl., 30 In. Stroke Engine, Silde Valve, One 240 Ibs. Direct-Acting Steam Hammer. ne 7 ft. x 16 in. Harrington Lathe. one 5 ft. 12 in. Bement Lathe.
One 12 in. Compound Planer, N. Y. Engine Co.
ix Pipe Cutting Machines.

Six Pipe Cutting Machines.
Three Pipe Testing Machines.
One 45 in. Upright Drill. Sellers.
Three Steam Pumps.
One Stillwell Heater and Purifier.
Two Vertical Nut Tappers, 3 spindles.
Three Nipple Cutting Machines.
Three Cylinder Boilers, 30 in. by 30 ft.
One 50 ib. Peck's Drop with Lifter, complete.
One 49 H. P. Double Deck Boiler.
One 60 H. P. Loromotive Boiler.
One 60 H. P. Locomotive Boiler.
One Sorew Fress, with steam table.
A large lot of turned Shafting from 13/4 to 6 in. diameter, with Pulley and Hangers. Also several hundred feet of 5 and 6 in. cast iron heating pipe.
Pipe Mill with nine furnaces complete, including shafting, gearing, drawing chains, roiling beds, &c.

HENRY I. SNELL. 135 North Third St., Philadelphia, Pa. E. BISSELL & CO.,

Wholesale Hardware Auctioneers. 83 Chambers and 65 Reads Sts., N. Y.

Sales held weekly for the trade. Consignments solicited. We refer to the leading Manufacturers and importers.

ROBERT R. HAYDOCK & CO., AUCTIONEERS.

No. 78 Murray Street, New York, SOLICIT CONSIGNMENTS OF

HARDWARE, CUTLERY, &c. FOR SALE OR TO RENT.

New, light Factory; 70,000 floor feet; 275 H. P. Corliss Engine, giving power at minimum

Shafting, piping, elevator, &c., all complete and modern. Lowest insurance rates. Railroad siding and ample yard room. Immediate posses

A large quantity of General and Specia Machinery at low prices.

SHARPE RIFLE COMPANY. Bridgeport, Conn. Manufacturing Property for Sale.

The Real Estate of the late Foundry and Machine Company of Taunton, Mass. Buildings consist of Foundry, Machine, Erecting and Blacksmith Shops, and covering about 60,000 square feet of ground. For particulars apply to THE GEORGE PLACE MACHINERY AGENCY, 121 Chambers St., New York.

For Sale. The Industrial Works of Shamokin, cwned and successfully carried on for a number of years by the late Wm. Brown, deceased, consisting of Foundry and Machine Shop, and a large steck of Patterns regarded as part of the property. Boder Shop, Blacksmith Shep and Factory for the manufacture of heavy coal screens. Well located in the borough of Shamokin, Pa., with the best facilities for shipping by rail, and surrounded by a district contributing all the work that a shop of that kind can possibly turn out. The works are now running, but in a very short tume possession can be given. Easy terms of payment are offered to suit a purchaser of limited capital.

purchaser of immed Sale by Offered for sale by WM. McILVAIN & SONS, Reading, Pa.

For Sale. Nest of Three Cylinder Boilers, complete; size, 48 inches by 30 feet, nearly new and in perfect

> DOVER IRON CO. OF N. J., Lock Box, No. 70, Dover, N. J.

For Sale.

condition.

The largest stock of New and Second hand Engines, Boilers, and general Machinery in the West. Send for Catalogue. Hoisting Outfits for Coal Mining and other purposes a specialty.

WARREN SPRINGER 195 to 219 South Canal St., Chicago.

For Sale.

ONE LARGE, SOLID, DOUBLE-ARMED BAND WHEEL,

11 feet 4 inches diameter, 2 feet 6 inches face, bored for 61/2 inch shafting. Will be sold cheap. AKRON RUBBER WORKS

For Sale.

50-Horse-Power Tubular Boiler, second hand, in first-class order. Also, a Lambertville 40 Horse-Power Engine used for six months, and one 40-Horse-Power Locomotive Boiler. JOSEPH LUMLEY.

144 N. 3d St., Philadelphia, Pa. For Sale.

COPPER WORMS

in good order for brewery purposes. SITES & GILL.

222 and 224 S. Third st., Philadelphia.

Bought and Sold by
WILLIS MERRILL,
4 Stone Street, Room 69.
Dealer in

HANGE MEMBERSHIPS.

TED.—A situation as Practical Sheet Steel older or Master Mechanic of Steel Rolling lidress

WM. WILSON,
Post Office Box 0, Middletown, N. Y.

A lot of 25-inch lathes designed to equal the best post of a large last of the Jobbing Trade of New York,
Address

MANUFACTURERS OF HARDWARE OR
HOUSE FURNIShing Goods wishing to be represented to the Jobbing Trade of New York,
Address

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HOUSE FURNIShing Goods wishing to be represented to the Jobbing Trade of New York.

WM. WILSON,
Post Office Box 0, Middletown, N. Y.

Cor. 5th and North 1cth sts., Brooklyn, E. D., L. I.

Special Notices.

For Sale.

Palo Alto Rolling Mills, Near Pottsville, Pa.,

ON THE MAIN LINE OF THE POTTSVILLE

AND READING RAILROAD.

Kolls for secremic Sar. Found as square, 446 inches.

Number of Puddling Furnaces in both mills, 5; Heating Furnaces, 9; all with boilers attached.

Also Foundry, Machine Shop, Blacksmith Shops, Iron Heuse, Roll House, Carpenter and Pattern Shops, Stables, handsome Dwelling for Superintendent, 11 Tenement Houses, a Brick Office, and ample grounds for stock and cinder.

For further particulars address

Messrs, LEE & McCAMANT, Extrs., Pottsville, Pa.

THOS. F.WRIGHT, 1804 Race St., Philadelphia, Pa. HUGH W. ADAMS, 56 Pine St., New York.

Furnace Property For Sale.

Will be sold at a low price. The Charter, Rights and Real Estate of the Bloemsburg Iron Co., to gether with such partions of the stock of materials and other personal property as purchasers may require. The real estate consists of two blast furnaces favorably known as the Irondale Furnaces, in good condition, steam engine, water power of 100 to 200 horse-power, lands with extensive iron mines, storehouse, numerous dwelling houses, R. R. tracks and sidings several miles in length (connecting the furnaces with both Canal and Railroad), canal wharves with tracks and facilities for receiving and shipping large quantities of fright with economy and dispatch, either by canal or railroad.

This property is situated at Bloomsburg, Pa., within 30 miles of the Wyoming Coal field.

The furnaces have been in continuous and successful use for 37 years. The Company own in addition extensive and valuable ore mines in Snyder.

Manufactured Iron.—The demand is large and prices are firmer, with a marked tendency toward higher figures. We quote: W. C. Hematites, mixtures Nos. 1, 2 and 3, equal portions, 56/@57/6, f. o. b. shipping ports.

Blooms.—The market is quiet and prices steady, with moderate business doing. We hear of inquiries from San Francisco for 200 tons Blooms for prompt shipment. We quote: Bessemer, 7' x 7' £4. 17/6 @ £5, f. o. b. shipping ports.

Manufactured Iron.—The demand continues large and prices are higher. We advance quotations:

Co., Pa.

Co., Pa.

All the property is in good order and now in profitable use. For further information apply to CHAS. R. PAXTON, President, Bloomsburg, Pa.

Bloomsburg, Pa.

Medium

For Sale or Lease.

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A Large Two-Story Brick Factory, A Large Iwo-Story Brick ractory, formerly Machine Works, at Pearl River, N.Y., on railroad depot, 25 miles from New York City. Railroad facilities unexcaptionable on the line of the New Jersey and New York Railroad. The property contains 40,000 square feet floor space, with one 85 H. P. Engine and Boiler, 700 ft. 2-inch line shafting and pulleys, main belts, steam heating and water pipes throughout the building. A splendid from foundty, 70 ft. by 90 ft., with one iron smelting cupola with Mackenzie blower, brass furnace, core oven, blacksmith shop, pattern vaults, annealing oven, etc. The property can be bought or leased on liberal terms. For further particulars, price, terms, etc., address unit Liberty st., New York City. Or Fearl liver, Rockland Co., N. Y.

BOLT HEADERS.

For Sale.

One Burdick Header. One Improved Lewis, Oliver & Phillips style. Two Chapin Headers,

Five National Headers. National Hot-Pressed Nut Machine. And complete outfits for Bolt and Nut manufac-

NATIONAL MACHINERY CO.,

Cleveland, Ohio. Specialists in this line of machinery.

For Sale.

4 Noiseless Vertical Engines, 8 x 8 Cylinder. New. 1 11 H. P. Vertical Tubular Boiler; cast-iron base plate; all complete; in good order. Second Hand. F. B. BANNAN,

STEAM HEATING AND BRASS WORKING. Pottsville, Schuylkill Co., Pa.

FOR SALE.

Horizontal Engine, 36 in. x 48 in.
Horizontal Engine, 24 in. x 60 in.
Horizontal Engine, 23 in. x 36 in.
Cortias" Horizontal Engine, 16 in. x 48 in.
Horizontal Engine, 20 in. x 60 in.
Horizontal Engine, 20 in. x 30 in.
Link-motion Engine, 16 in. x 30 in.
Upright Engine, 28 in.
Upright Engine, 28 in.
JUNIN CARROLL,
264 and 266 Water Street.

Corliss Engines For Sale.

PROMPT DELIVERY.

One-12-inch cylinder, 36-inch stroke, at once One—12-inch cylinder, 36-inch stroke, in two ceeks. Apply to

THE GEORGE PLACE MACHINERY CO. 121 Chambers and 103 Reade St., New York.

For Sale.

Second-hand

DROPS and LIFTERS.

BEECHER & PECK, Lock Box 122, New Haven, Conn.

For Sale.

Horizontal Fingines, 16 x 42 (Hewes & Phillips), with cut-off; 16 x 36 (Currier), with cut-off; 16 x 38 Upright Engine, with cut-off; one 80 H. P. Locomotive Boiler; one 4-ton "Otis" Freight Elevator; one 50 H. P. Horizontal Tubular Boiler. All the above guaranteed complete and in perfect order. BELCHER & BAGNALL, 40 Cortlandt St., N. Y.

9 Pemberton Square, Boston, Mass., Manufacture of Iron and Steel

In he Bessemer Converter, Crucible, Siemens Martin, Puddling, Blast and Cupola Furnaces. Martin, Puddling, Blast and Cupola Furnaces.

The use of this Process improves the quality of the product, saves fuel and labor, and does not require any change in furnace or manner of working. See page 17 of The fron Age of Oct. 25th, 1877.

Sterning exchange for the moment in the moment in the product, saves fuel and labor, and does not require any change in furnace or manner of working. See page 17 of The fron Age of Oct. 25th, 1877.

Trade Report.

BRITISH IRON AND METAL MARKETS.

[Special Cable Dispatch to The Iron Age.] LONDON, WEDNESDAY, Oct. 11, 1882.

These mills are in good repair, and can be started in two days time.
Rolls for T-Rails 12 to 70 lbs. per yard, and for Street Rails 18 to 70 lbs. per yard, and for Guide Mill Train for Merchant Iron ¼ to 1 inch.
Rolls for Merchant Bar, round and square, up to the topology of the started in two days are steady.

Scotch Pig.—The market is active with a large demand, and prices are steady.

The following are to-day's quotations for makers' brands:

Langloan, alongside, Glasgow.......68/ Jartsherrie Lighterage from Ardrossan to Glasgew is 2/@

b. makers' wharves in Toos, less usual 21/2 %. The following are to-day's prices:

Middlesboro' No. 1 Foundry 48/6

Bessemer Pig.-The demand is large and

	de	10 .	MA.	and .	(3)	14
Staff. Ord. Marked Bars	8	0	00			
" Medium "	7	5	00	7	15	0
" Common "	6 1	0.1	00	7	0	0
Hoops, 20 W. G. and over.						
" Common Best	8 1	C	00	9	0	C
Medium	7 1	01	00	7	25	0
" Common	7	0	00	7	10	0
Sheets, 20 W.G. & under.						
" Ordinary Best 1	0	0	00	XX	10	0
" Common	0	0	00	9	CE	0
Welsh Bars	6	a	00	1.5		* 5
Steel RailsThe mark	cet	is	qui	et.	wit	h

fair demand, and prices tend toward higher figures. Ordinary Sections are quoted, £5. 7/6 @ £5. 17/6, f. o. b. shipping ports. Iron Rails.-Nominal. Welsh, £4. 17/6

Old Rails.-The market is quiet, with noderate offerings and small sales. Prices are seady. We quote Old Tees, £3. 17/6 @ £4. steady.

c. i. f. New York. Scrap.—The offerings are moderate and sales fair. We quote Heavy Wrought, c. i. f. quoted, 65/ @ 67/6.

Copper.-The market is active, with

Tin .- The market is unsettled, and prices are weak. We quote: Straits Tin, spot, \$190,240,378, an increase of \$27,128,617. £105. 15/@ £106. 10/.

Tin Plates .- There is a moderate business doing, and prices are firm. We quote: Tin Plates, 10 x 14, 1st qual. Charcoal .. 22/ @ 24/ " 2d " " ...20/ @ 21/
" 1st " Coke18/ @ 18/6
" 2d " "16/6 @ 17/

and prices steady. Ordinary is quoted £17 @ £17. 2/6 at shipping ports.

Lead .- There is no change to note in the condition of the market, except that prices decrease now in progress it is calculated that we shall be able to pay off the whole £14 @ £14. 7/6.

Freights.—Steam from Glasgow to New York, 10/ @ 12/6; ditto from Liverpool to New York, 12/; Liverpool to Philadelphia, last week:

FINANCIAL.

Office of The Iron Age, Wednesday Evening, October 11, 1882. Reports coming to hand respecting the mercantile situation continue to be favorable, but the amount of business in progress is moderate, hardly realizing expectations was favorable, showing a large gain of as formed earlier in the season. The impediand a heavy contraction of loans. ment appears to arise, primarily, in the reluctance of the agricultural classes to part this port during the week ending Octob with their products at the prices now ruling. The material enhancement of the price of gold, and \$6,454 in silver, as against a to wheat during the past week or ten days may of \$736,226 for the week ending Oct. overcome this disposition, and is of consider- last year. The importations since the 1st able significance. On the other hand, it is January and since the 1st of August co remarked that the high price of several of pare as follows with the movement duri the principal articles of export, together with the scarcity and firmness of freights, is tending to check exports. For wheat, however, the foreign markets show more stability. Accounts given by merchants respecting our fall trade represent the volume of business The Sherman Process Co. as very satisfactory in almost every branch, and, for the most part, from 10 to 25 % in advance of last year to a corresponding date. laue Licenses to use the Process for the Business, too, is done on a fairly remunerative basis, and without speculative excitement, to supply legitimate demands.

Sterling exchange for the moment is

pects for a renewal of gold importations, a leading dealer in bullion remarked to-day that we must export much more freely of cotton and cereals before gold can come this U. way in any amount. At present there is almost no movement of securities, but there s some inquiry for exchange in settlement of sterling loans, the volume of which has been considerably reduced within the last two

On the Stock Exchange bear raids and disquieting reports caused an unsettled market through the early part of the week, about the lowest prices being recorded on Friday and Saturday. Monday introduced a radical change, speculation showing much strength and prices advancing 1/2 @ 21/2 per cent. on heavy purchases. The long period of depression, it was hoped, had terminated. The most important influences in the recent decline were the revelations made concerning the heavy indebtedness of the Louisville and Nashbeen done during the week and prices are firm. No. 3 G. M. B. continues at 44/6, f. o. \$\) \(\) rapid fall in the Richmond and Danville of 16 %. Easy money helped to a re-covery and the week's favorable bank returns aided the improvement. The net No. 2 " 47 Improvement on Monday in the active list No. 4 Forge. 43/6 was equal to ½ @ 1¾ £, the latter in Michigan Central. On Tuesday transactions were above the usual average, attended with a sharp upward movement in the early trade, but later in the day money was bid up to 10 %, and prices sagged. As on previous days, the market appeared to be wholly at the control of professional traders. To-day railroad bonds steady, with moderate business doing. We hear of inquiries from San Francisco for decline. Western Union Telegraph advanced 2000 tons Blooms for prompt shipment. We to 89 on the report of the annual meeting, quote: Bessemer, 7" x 7" £4, 17/6 @ £5, f. showing profits for the last year amounting to b. shipping ports. at the close, as follows: Delaware, Lackawana and Western, 1353/4 @ 1333/8; Denver, 55 @ 5356; Erie, 4356 @ 4234; Illinois Central, 141 1/ @ 144; Lake Shore 112 1/ @ 111 1/8. Louisville and Nashville, 56 7/8 @ 55 7/8; Western Union Telegraph, 89 5/8 @ 88 1/4; Union Pacific, 10834 @ 1073%; Texas and Pacific, 461/2 @ 4434; Milwaukee and St. Paul, 111 @ 1101/8; Northern Pacific, 49% @ 48%; ditto preferred, 94% @ 92½; Jersey Central, 73 @ and prices, with few exceptions, rule firm. 71; Michigan Central, 99½ @ 98%; Canada Southern, 68 @ 67%, and Oregon and Trans-

continental, 90 @ 89. The ruling quotation for call loans during the week has been 6 @ 7 %, with exceptions as high as 10 %. In the last hour to-day the rate fell to 3 %. We quote 60 to 90 days' indorsed dry-goods bills receivable 6 @ 61/2 %; four months' acceptances 6 1/2 @ 7, and good single names, four to six months at 61/2 @

Last week the total shipments of domestic 2/6, and Old D. H's., £4. 5/ @-£4. 7/6, all merchandise from this port were valued at \$6,592,524, against \$5,536,912 for the same week last year, when the exports were exceptionally small, owing to the previous speculation in grain. At present, breadstuffs New York, nominally, £3. 12 6 @ £3. 15/. and provisions are moving outward slowly, Bessemer Crop Ends, run of the mill, are while cotton shipments are becoming an important feature, numerous steamers having been chartered to take cotton from the steady demand, and prices are firm. Best South at full rates. The earnings of the Selected is quoted £76 @ £77, and Chili active roads, as compiled by the Commercial and Financial Chronicle, show total gross earnings from January 1 to September 30,

The rapid reduction of the national debt and questions arising respecting the bank currency of the future receive more attention in financial circles. When the Government debt was at it highest point, August 31, 1865, we owed, less cash in the Treasury, Spelter.—The market continues quiet \$2,756,000,000. On the 1st of October 1882, the debt of every description reached only \$1,644,120,223, showing that we have reduced our obligations during the 17 years over \$1,000,000,000. But at the rate of

remainder of the debt in about nine years. The following is an analysis of the bank

last week :				
Specie Legal t'd'rs Tot.reserve Deposits	Sept. 30. \$319,397,600 48,423,000 21,646,800 70,069,800 288,628,900	50,403,600	Dec. Inc. Dec. Inc.	\$4,901,00 1,980,60 33,20 1.947,40 2,447,40
Reserve required Deficiency Circulation. *Surplus.	72,157,225 2,057,495 18,799,800	71,545-375 471,825 18,908,500	Inc.	611,85 8,559,25 108,00

As above seen, the weekly bank stateme

The importations of specie and bullion 6 were \$261,517, consisting of \$255,063

the corresponding per		
Gold	1882. \$1,342,416	1881. \$44,983,226 2,211,771
Total	\$3,354,238	\$47,194,997
Gold	1883. \$699,905	1881. \$16,350.187 457,553
Total	\$1,249,009	\$16,816,740
Government bonds lowing quotations:	are steady	at the fol-
	1	Bid. Asked.

S.	4'S 1907 CO	up	on		۰					1191	á	11936
8.	Currency	68	1895.						 	130		Miles
Si.	Currency	68	1896							131		-
8.	Currency	68	1307							132		-
S.	Currency	ÚS.	1808	۰						133		
S.	Currency	68	1899	٠				,		134		german.

for Mining Stocks:

٦		BHI.	Auren.
)	American Flag	35	16
	Alta Mont	25	
1	Belle Isie	35	
	Bulwer	95	ç6
	Bull Dom	3	
	Big Pittsburgh		33
	Bradshaw	42	45
1	Calaveras	5	7
1	Cale B. H		2.00
	California	29	
1	Climax	10	13
1	Consolidated Imperial	3	6
1	Consolidated Virginia	75	76
1	Chrysolite	1.50	1.65
1	Cent. Ariz	60	65
1	Cherokee		18
1	Durango	-3	11
1	Dunkin	33	
1	Decatur	2.3	70
1	Eureka C		14
1	Findley		15
1	F. De Smet	00	
1	Empire-Utah.	IO.	
ı	Gr. Prize	60	75
1	Great Eastern	2	
١	Green Mountain	85	80
1	Hukill		20
1	Hall And		10
1	Hibernia	8	
1	Hortense		
1	Independence	1.45	1.50
1	Iron Silver	2.05	1111
1	Lacrosse	2.05	
1	Leadville Con	2,03	20
1	Little Pitts		30
1	Lucerne		
1	L. Chief	50	55
1	Moose		33
1	Nor. Belle	13	
1	Rappahan'k	11	
1	Robinson Con		1.75
1	R. Sun	6	1.73
1	Red Elepht.	0	2.3
1	Standard		5.00
1	S. Chiff.	86	89
1	South Pacific	13	14
1	St. L. 1 and 4	5	7
1	St. L 2 and 3		10
1	Tuscarora		
1	Union Con		5.00
1	Vigina		1.45
1	Vizina B., H. & E, n	8-	145
1	Dig LL GC Est Harris	07	78
1			
1	-		
1	C. WILLIAM V. W. W. W. W. W. W. W.		

GENERAL HARDWARE.

The conditions prevailing in the Hardware trade are much the same as when we last went to press. In some lines of goods we hear of an improved demand, but in general business is more quiet than is usual in October. Values continue remarkably steady,

tone of the market is strong.

The demand for Nails continues fair, although not quite as active as it was last week. Stocks are still poorly assorted and some of the leading sizes difficult to obtain; 10d. to 60d. are bringing \$3.75, net, per keg, in a regular way, but fair-sized orders could be placed on the basis of \$3.65, net.

We have received the following circular: AMERICAN TABLE CUTLERY MFRS. ASSOCIATION

At a meeting of this Association, held at New York, Oct. 6, 1882, the undersigned have agreed to confirm and abide by the prices existing July 1, 1882:

AMERICAN CUTLERY Co., M. Rubel, Secretary.
BEAVER FALLS CUTLERY CO. H. T. Reeves, President. FRARY CUTLERY CO, A. Trunk, President.

LAMION & GOODNOW MFG. Co.,
Allan G. Lamson, Ass't Treasurer.
LANDERS, FRARY & CLARK,
C. S. Landers, Treasurer.
MERIDEN CUTLERY Co., Homer A. Curtis, Secretary.

John Russel Cutlery Co.,

R. N. Oakman, Jr., Treasurer. The Cowles Hardware Co., Unionville, Conn., have issued the following discount sheet to apply to their illustrated catalogue

ì	and price list of July 1, 1882:
,	Unionville, Conn., October 5, 1882.
l s f	Dis. per cent
	Butts, Iron, Japanned.
1	Geer's Spring, Single and Double Acting2 Blank, Single and Double Acting2
	Solid, Bronze Ornamented.
	Geer's Spring, Single and Double Acting
- 1	Clabra Lyamyoun

, 400	Border Knives 50
,400	Box Hook and Openers
850	" Scrapers
250	Bolt Safety Window Spring30
000	Cake turners40
,000	Corn Hooks40
	Cover Lifters40&10
ent	Carpet Stretchers, "Bullard's"
	Cover Lifters. 40&10 Carpet Stretchers. "Bullard"
ash	Carriage Jacks40
	Corn Grater
	Door Springs, Hercules40
at	" Air Cushion
ber	Stop
Der	Erg Beater, the Surprise
in	Ferrules, Brass, in bulk
4-1	in gross, assorted, \$1net
otal	Faucets, Rosewood 3214
. 8	Fish Turners40
	Glaziers' Points, per lb., 200net
of	Gate Hinges, Jewett's 25 Handles, Screw Driver, Awl, Chisel and File 25
om-	Handles, Screw Driver, Awl, Chisel and File 25
	Hoes, Shume
ing	Hammers, Tack, No. 440
	" Magnetic33%
	Hooks, Hammock75
	" Clothes Line75
81.	Hand Screws25
,226	Ice Tongs20
,771	Lemon Squeezers
-	Mallets, Tinners' and Carpenters'
,997	Mouse Traps, Common, per doz. holes, 15cnet
	Mincing Knives, Sheet and Hammered, Steel 50
-	Nut Cracks50&10
I.	Nail Sets
.187	Spoons, Tea and Table
1553	Screw Drivers, No. 1, Extra50
-	No. 150d.10
,740	No. 00
fol-	" No. 4 3355
IUI-	" Lock Spindle
	" Bit Brace 40
red.	Track Claws. 50&10
0036	Trowels, Garden
1336	Washers, Tin and Carpetnet
13%	iron 8 cents off per lb.

IRON.

American Pig.-The market rules quiet, its chief business being deliveries on old contracts, which go on without interruption, and are said to be sufficient to absorb, if not The following were the closing quotations the entire production, the product of those brands most in favor here. There is very Bid. Asked. little Iron offering, and no pressure to sell that we can hear of. The tone of the market is strong and values firm as follows: Foundry No. 1 X, \$26 @ \$27; Foundry

No. 2 X, \$24 @ \$24.50; Gray Forge, \$22. Scotch Pig.-The supply of Scotch Iron n this market is unusually light, and most of he afloat lots are said to be engaged. The demand is fair, and but for the high prices prevailing a larger business would be done. Sales reported during the week aggregate over 500 tons various brands. We quote : Eglinton, \$23.50 @ \$24; Carnbroe and Glengarnock, \$25.50 @ \$26; Coltness, \$28; Gartherrie, \$26, and Langloon, \$26.50 @ \$27.

Rails.—Sales are reported by Pennsylvania mills of 13,000 tons of Steel Rails for delivery in 1883 at \$45 and 1000 tons near-by delivery at \$46 at mill. We quote \$45 @ \$46 or Steel. Iron Rails continue to be neglected and prices nominal.

Old Rails.-The business transpiring in Old Rails is very light, and there is scarcely any inquiry. Holders' views are about \$27.50 @ \$28 for Tees, and \$30 @ \$31 for Double Heads.

Wrought Scrap.-We have not heard of a single transaction in Wrought Scrap worthy of mention during the week. We quote No. 1 from yard, \$29@ \$30, and exship lots, \$28 @ \$28.50.

Manufactured Iron .- A fair amount of ousiness is transpiring, but there is not as much snap to the market as the selling interest would like to see. We hear of Reined Bar being sold in a small way at 2.8¢, but there would be no difficulty in placing a fair-sized order on the basis of 2.7¢ from store.

METALS.

METALS.

Copper.—No change has occurred in this market since our last report. Sales have been confined to about 150,000 lb Lake at 18¢@ 18¼¢, while Baltimore and Arizona sell steadily at 17½¢@ 17¾¢, according to quantity and brand. England has kept steady at £76. Io/ for Best Selected, and £71. Io/ Chili Bars till this morning. This afternoon we receive from London the ensuing dispatch, per cable: "Market active, steady demand and prices firm. Best Selected, £76 @ £77; Chili Bars, £70.15/@ £71. 5/." Manufacturers have made no change in prices. They quote: Bottoms, 31¢@ 36¢; Braziers, 30¢@ 36¢; Circles, 33¢@ 36¢; Sheathing, 28¢, and Bolt Copper, 30¢; Segment Sheets, 33¢; Firebox ditto, 30¢.

Tin-Has become excessively dull, with a The rias become excessively duit, with a drooping tendency, large lines Spot Straits still selling to a moderate extent at $24 \frac{1}{2} \frac{\phi}{60}$ 25 $\frac{\phi}{2}$, but futures being offered a cent or two below this. London has fluctuated a great deal; thus it gave way yesterday to £106, and this morning had recovered to £107. 5/ while this afternoon we received from there the following cablegram: "Market unsettled and prices weak. Straits, spot, £105.

15/ @ £106. 10/." Lamb and Flag commands at New York 24¼ € @ 25½ c.

IMPORT INTO THE UNITED STATES.

Jan. 1 to Aug. 1, 1882. Value. \$2,846,583 Cwts. \$2,795,000 Jan. 1 to Aug. 1, 1881.

\$9,045,520

Tin Plates.—Charcoal Tins are in light stock and firm; there is also a fair demand for roofing plates. Coke Tins have arrived a little more freely, and as the demand is light little more freely, and as the demand is light they are rather easy. The English market keeps very strong, and the price there so high that to import plates leaves at present no profit at all. We quote at the close, large lots, ordinary brands, \$\epsilon\) box: Charcoal Bright, \$\epsilon\) (@ \$6.25; ditto Ternes, \$5.25 (@ \$5.50; Coke Tin, \$5.20 (@ \$5.35, and ditto Ternes, \$\$5 (@ \$5.12\forall 2. Liverpool cabled yesterday; Coke, 16/4\forall 2 (@ 16/6, and Charcoal, 18/6 (@ 20/6; and we are told to-day that there is only a moderate business doing and that prices are firm. that prices are firm.

IMPORT INTO THE UNITED STATES.

Jan. 1 to Aug. 1, 1882. \$11,060,533 85,388 Jan. 1 to Aug. 1, 1881. Total import. 2,002,645
Re-export. 8.268 88, 162, 091

Lead.—There has been no particular change; about 200 tons Common Domestic Lead sold at \$5.10 @ \$5.20; 200 tons Selected Stolberg at 51/86, and of Refined Domestic this morning 100 tons at \$5.10. At \$t. Louis 400 tons best corroding, Kansas City for the most part, sold at $4 \frac{1}{2} e^{t}$; freight this way, $38 \frac{1}{2}$. Mr. Benjamin Tatham, of this city, has advocated before the Tariff

The common sequence of	22	19		Ľ	THE IRON AG
Mart	IMPORT INTO T	HE UNITED STATES.	EXI	PORTS	
Section of the common Seption of Part Section of the Common Seption of Section of Sectio		Aug. 1, 1882.			Copper 112 44.55
Selection from the property of	Total import	3,402,451 \$108,92	o &c., from the Port		Hardward 6 1,15
Jane 16 Jan. 1997. Seption and Miles - Indian price of storing of the control of	Net import	2,958,117 \$90,86	- Million Children		Iron, pig tons
Table		Aug. 1, 1881.	Ptm gals 2460 \$280		Iron, other, tons 1,221 46,23
New Part and Common Special Common S	Total import	4,486,576 \$150,83	Tacks, cse 1 31 Cutlery, cs 4 45	Cutlery, cs 15 173 Hdw , pkgs 7 40	Metal goods
The content of the			- can will bradients 2	Mf. iron, pgs 9 75	Old metal 11,88
Bas interprised in Community Section, where the product of the facility of the product of the facility of the product of the facility of the product of the	Equal to, tons	1,777			Plated ware
From London we are colled to the following price and prices and pr	has transpired in C	common Spelter, which	Ptlm., gals.176,105 14,500		Pins 10 76
Section Continues 1.00 C	From London we are	e cabled to the following	Danish West Indies.		Saddlery
Description 1995	quiet and prices ste	adv. Ordinary, £17 @	Ptlm., gais 850 110		Steel pens
## 2011 10 April 10 A	Bertha Refined, 8¢,	and Bergenport, 91/2¢	Pumps, pkgs. 4 340		Silverware 10 1,00
The company of the			Hdw., cs 6 210	1 tilli., gais3000 330	Wire 15 3.50
Part		Aug. 1, 1882.	Ag imp pgs 2 20	Ptlm., gals. 170,500 18,500	The quantity of leading articles imported
Processor Proc	Spelter	15,746,444 \$642,31	Amsterdam.		For the 40 weeks Same time
Description	Total	19,056,702 \$797,48	Iron drums 150 1,500	Mf iron, pkgs 28 1,041 Saws, cs 5 252	Cutlery, pkgs 112 5,816 5,411 Hardware, pkgs. 6 829 746
Spent to the common to the com	Re-export, sheet zinc	7,804 39	Ptlm., gals6000 800 Mach'y, pkge. 1 250	Mach'y, pgs., 8 500	Lead, pigs 27,124 20,700 Steel pkys 25,768 1,559,822 865,320
Formation of the company of the market romains under the company of the company o	Equal to, tons	8,500	Hdw., Cb 3 124	Cutlery, cse 1 15 Ptlm gals 52,800 6,510	Tin, boxes 13.434 1,750,631 1,276,685 Tin slabs, lbs 247,335 14,163.391 12,398,882
Column C		Pounds. Value		Wheels, pgs., 6 420 Ag. imppkgs 26 1,433	SPECIE EXPORTS.
Section Sect	Sheet zinc	1,375,497 59,90	Clocks, pkgs 15 116 Guns, cs 5 852	Pumps, pkgs. 8 405	Total
Authmosty.—The market remains all 196 gr 13/67, Colored and Metals for his Present. INFORTS Of Bardwarer. Missi and Metals for his Present. In Profess. Of Bardwarer. Missi and Metals for his Present. In Profess. Of Bardwarer. Missi and Metals for his Present. In Profess. Districts 11. 18. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19	Re-export, sheet minc.		Cutlery, cs 2 124		Total since January 1, 1882 \$44,238,64
Triple Table Part			Mf. iron, pkgs 3 450 Hdw., cs 41 1,470		Same time in 1881
Target T	Antimony.—The	market remains unal			Same time in 1878
All April 1996. A professor of the Work and the Company of the Comp	11 1/4, Hallett	2¢, Cookson, and 11¢ @	Naph. gals. 130,272 0,060	Ag. imp., pgs 32 2 245 Clocks, pgs 19 1,500	Same time in 1876
Marcharers, Parts and Relate (a) Marcharers 11, 1887 Marcharers 20, College, vol. 1, 1887 Marcharers 30, College, vol. 2, 1987 Marcharers 30,		•	Mf. iron, pgs. 7 288	Ptlm., gals 764,825 52.864 Cp. carboys,cs 25 1,750	Same time in 1873
Gelecker H. J. 1967. Here Hermann 6. O. Hermann 6			Ag. imp. pkg8 192 2,057	Mach y. DKgs. 8 2,374	CHARLE THE PARTY OF STREET
Borte Branch & Co. The Control of St. Co. Co				Marseilles.	For the week ending October 10:
Distry Hermans of District for the property of			Petm. gls.1,166,778 93,105 Hdw., pgs 13 649	Mach'y, pkgs. 5 700	Total \$8,525,621 \$5,536,912 \$6,592,52
The property of the property o	Hardware.	Order, Pig. tons, 1040	Sew. ma. cs 60 1,240	-	A Com Com on Carin 150 2
Street, Party of the Collaboration of the Collabora	Cutlery, cs., 16	Pig, lot, 1 Spiegel, tons, 1680	Mf. iron, pkgs 32 281		
Cates, 5.7 Cellar, 7.1 Degrans, Ayrma & Co. Prof. 2016. 101. 101. 101. 101. 101. 101. 101.	Hdw., pkgs., 2 Guns, cs., 8	Wire rods, bdls., 4906	Clocks, pkgs, 285 4,283		
Designar Ayman & Co. Park Africa & Co. Control of the Contro	Cases, #3	Ore, tons, 6218 Pig, kg., 350,278	Mf. iron, pkgs 157 2,452	Mf. iron, pgs., 343 2,882	fair amount of business in progress, particu-
Members, me. n. 1 Arms, de. g.	Clark Thread Co. Machinery, CS., 129	Sheets nkgs to		Tin plates, bxs 10 150	larly in the domestic sizes. Sales for the
Remote, See al. Arms, Co. 2. From F. A. & Co. 2. From F. A. & Co. 3. From J. A. & Co. 3.	Mdse., cs., 10	Scrap, kg., 348,145 Scrap, bags, 1603	Hdw., pkgs 48 3,892	Tacks, cse 1 37	animation toward the close of the month.
Old ralls, four, and and the properties of the p	Mdse., cs., 21 Cutlery, cs., 2	Wire, pkgs., 100	Pumps, pkgs. 29 2,298	Brs. g'ds, cs 4 455 Iron case 1 52	able and largely at September prices. Only
Charley Co. Charle	Chains, cks., 7	Old rails, tons, 143	Clocks, cs 78 3,301 Sew. ma., cs. 4 202	Ptlm., gals, 136, 360 11,662	claim to realize the prices set forth in the
Jackins W. 1995. Johnson J. & Co. Johnson J. &	Mdse., case, 1 Graef Cutlery Co.	Cotton ties, bdis.	Wringers, cs. 9 340	Pib. mtl., pge. 1 28	however it is true that the circulars mean
Johnson J. G. 19. Moore N. 1907. 19. N. 1908. 1989.	Cutlery, cs., 5 Hartley & Graham,	Sheet, bxs., 10 Sheet, bdls., 317 Hoop from bdls. 67	Ptlm., gals.340,000 30,000 Mf. iron, pgs. 13 119	Sew. ma., cs 2 55 Ag. imp., pkgs 21 260	especially to such companies as are supplying
## steel. ## Seed and the content of the content o	Jenkins W. Machinery, cs., 3	Old rails, pcs, 3126 Plates, bdls., 3	Saws, pgs 6 78	Cutlery, cse. 1 49 Scales, pkgs. 30 804	demand, as a rule, is for small lots. The
Arment St. of St. Prof. St. of	Johnson J. & Co. Machinery, pgs., 196	Abbot Jere & Co			subject of an advance is occasionally dis-
Other Ross & Co. Other Bross & Co. Downing shaded and Co. From Ross & Co. Security & C. Security	Gun caps, cs., 10	Cases, 70		Ptlm., gals. 16,503 1,646 Clocks, bxs 23 134	generally is that they have gone far enough. In Fituminous Coal, the novel spectacle is
Outperford Chapter and Company of the State of Chapter and Chapter	N V. Nat. Bank Ass'n.	Rods, bdls., 6343		Windmills, cs. 4 85	presented of the Cumberland and Clearfield
Downing, Shedon & Co. Machinery, St., 2 & Co. Cruse, 1 pp. Co. Annile, s. of Struider, Lan & Co. Traylor Thomas, Wagnery P. P. Machiner, G. S. Machiner, G. S. Machiner, G. S. Wagnery P. P. Machiner, G. S. Machiner, G. S. Wagnery P. P. Machiner, G. S. Wagnery P. P. Machiner, G. S. Wagnery P. P. Machiner, G. S. Machiner, G. S. Wagnery P. P. Machiner, G. S. Machiner, G. S. Wagnery P. P. Machiner, G. S. Machiner, G. S. Wagnery P. P. Machiner, G. S. Machiner, G. S. Wagnery P. P. Machiner, G. S. Machiner, G. S. Wagnery P. P. Machiner, G. S. Wagnery P. P. Machiner, G. S. Machiner, G. S. Machiner, G. S. Wagnery P. P. Machiner, G. S. Machiner,	Rivets, cks., 2	Blooms, 894 Dolge A.	Mf. iron, pgs. 39 1,346	Railroad cars. 35 22,438	from each other, the local market being
Deemington R. 6 Sons, Bellowering, David Like, Sp. 2 and	Gas engine, r Page George,	Mdse., cs., 2 Downing, Sheldon & Co.	Sew. ma., cse. 208 7,407 Iron drums 20 1,009	Pumps, pgs 6 1,670	serious obstacle. Quotations are \$3.50 at
Bales, 19. Bales,	Remington E & Sons,	Duval H. R.	OX. Zinc, Ddis. 100 900	Nails, kegs 66 882 Cutlery, cs 9 556	they are only nominal.
Bales, 19. Bales,	Gales,	Cases, 10	Mach'y, pkgs. 16 4,910	Nails, pgs 5 98 Clocks, pgs 10 163	collecting \$1.20 P ton on Coal from Mauch
Co. 1	Mdse., cs., 18 Arms, cs., 33 Stevenson Pierson &	Plates, 130 Russell J. Cutlery Co.	Guns, cs 9 196 Cylinders, cse 1 60	Firearms, cs., 6 1,473	Chunk to Belvidere for Coal points on the
Temple & Lockwood, Bundles, 46 Wagner W. F. Salmeles, 46 Wagner W. Salmeles, 46 Wagner W. Salmeles, 46 Wagner W. F. Salmeles, 46 Wagner W. Salmeles, 46	Co. Cases, 170	Case, 1 Struller, Lau & Co.	Nails, bxs 105 557	Metal, cs 2 53 Lead pipe, ck. 1 44	on Coal for Middletown and Newburgh, N V Eastern freights are unchanged.
Welshauch, Hilder & Co.	Arms, cs., 9	Temple & Lockwood, Bundles, 46	Ptlm., gals. 355,700 26,000	Sew. ma., cs., 293 7,281 Mf. iron, pkgs 146 9,071	The subject of utilizing Coal waste is attracting more attention.
Marches, 19 Hardes, 29 Hardes, 29 Hardes, 20 Ha	Mdse., 98., 3	Bars, 23 Wagner W. F.	Mach'y, pkge. I 200	Car house, 1 6,651 Hdw., pkgs 169 10,565	An official report shows that Illinois is sec-
Content Cont	Wiebusch, Hilger & Co.	Cases, 22	Sew. ma., cs. 27 800 Clocks, bxs 215 5,303	Tacks, pkgs 8 131	of Coal.
Force Forc	Hdw. and cutlery,	Bars, 175 Order,		Locomotive I 10,835	some diversity of opinion in the trade as to
## Meter Co. Corder,	Arms Co.	Packages, 46			pared with that of last year. Last year the
Am. Mster Co. Grid harrels, 16 Cases, 1 Iron. Iron	Guns, cs., 6	Bars, 2	Ptg. pr'ss's,cs. 4 263		ooo tons. Some are now of opinion that the
Cases, 1 Timed plates, bzs., Timed pla	Arms, cs., 2 Cutlery, cs., 8	Am. Meter Co.	Mf. iron, pgs. ar 292		product this year will cap the odd half million of tons, swelling the aggregate for the
Baring Bros. & Co. Brown Bros. & Co.	Gun barrels, 16	Tinned plates, bxs.,	Hdw., cs 2 80	Pumps, pkgs. 11 295 Mf. iron, pkgs 17 675	year to 29,000,000 of tons, the largest year's business ever known to the Anthracite Coal
Baird S. F.		Baring Bros. & Co.	Hay press,pgs 5 100	Revolvers, cs. 3 365 Rifles, cs 2 550	trade. It is not to be inferred from this,
Cardenas & Co. Old copper, box Cardenas & Co. Old copper, box Collection	Wire rope, reel, 1	Brass tubes, 2	Sew. ma., cse. 1 30	Mach'y, pgs 15 7,089 Nails, kegs 10 37	end of the year will be less than in the cor-
Wire rods, colls, 1797 Hars, 1828 53 1797 Hong Kong, Play, 1828 53 79 1799 Hong Kong, Play, 1828 53 79 1799 Hong Kong, Play, 1828 53 79 Hong Kong, Play, 1828 53 79 Hong Kong, Play, 1828 79 79 179	Baring Bros. & Co.	Old copper, box, 1	Nails, kegs 40 160	Iron safe 1 220 Sew. ma., cs., 10 211	rockommile anno men Jour.
Post	Wire rods, coils, 1797 Bars, 1832	Canadian Bank of Com-	Ptlm., gls 750 120 Hdw., pkgs 750	Ag. imp.,pkgs 7 175 Iron, pgs 60 112	OLD METALS, PAPER STOCK, &C.
Drown Bros. & Co. Wire roda, bdis., 122; Old 6sh plates, 1005.	Rods, pkgs, 803	merce.	Hong Kong.	Ptlm., gals35,350 4,278	
Broomheed George, Wire rods, bdfs., 60 Codington, 1 B, & Co. Sheet, bax, 50 Old test, 50 Code & Brailey, Beams, 76 Control Bela, October Control Bela, College Control Bela, C	Wire rods, bdls., 1221	Co.		State Dr mingo.	Copper heavy
Broomheed George Cook dynamics Collection Coll college; old, 1 Collection	Old fish plates, tons,	Antimony, cks., 34	Ptlm., gals.490,000 50,225	Cloake need v	Copper Bottoms 49372
Cook & Brailey Beams, 70 Cosulto Bela, Ore, kg., 300,000 Drexol, Morgan & Co., Ore, tons, 360 Roors J. B. & Co., Antimony, cks., 31 Roors J. & Co., Co., Co., Co., Co., Co., Co., Co.,	Wire rods, bdls., 60	Old copper, bdl., z Old composition, 3	Mf. iron, pgs. 15 238	Shot, cs 2 13	Brass, heavy " .II @
Cook & Bradley, Beams, 70 Cosultch Bela, 20cco Ore kes, 20cco Micro kes, 20cco Micro kes, 20cco Cosultch Bela, 20cco Cosult	Sheet, bdls., 229 Sheet, bxs., 30	Old tes., 2 Lamarche H. & Sons,	Nails, kees 70 504	Nasla kora	Lead, heavy
Cost	Cook & Bradley, Beams, 76	Spelter, ingots., 843 Zinc, cks., 50 McCov & Sanders.	Hdw., pkgs 11 130	Canary Islands.	Zinc
Antimony, cks. 33 Article. For the week ended October 6 : Bars. 56 Co. Guare, 17 Co. Guare, 18 Co.	Ore, kg., 300,000 Drexel, Morgan & Co.	Nickel, cs., 6 Moors J. B. & Co.	British Possessions	Hdw., pgs 24 105	Pewter, No. 2
Sundles 10 10 10 10 10 10 10 1	Ore, tons, 360 Ironclad Mfg. Co.	Antimony, cks., 33 Marval Bros. & Co.	Hdw., pkgs 212 3,764	Venezuela.	Stove Plate
Spelter, plates, 4866 Grown and, cks., 2 Lundberg Gust. 2 Lundberg Gust. 2 Lundberg Gust. 3 Mason John W. & Co.	Bundles, 108	Meissner, Ackermann &	W. mills, cs., 4 91 Ptlm., gals., 19,800 2,788	Ptlm., gals6243 732 Nails, kegs 33 201	Grate Bars. 5.00 66 5.50 Electrotype plates 9 fb. 04½ 66
Phelps, Dodge & Co. Burdles, 6 Mason John W. & Co. Wire rope, coils, 20 Missen, 4ckermann & Co. Lot of iron, 1 Morton, Bliss & Co. Beams, 16 Strats A. D. & Co. Brass, bdt., 1 Metal. bbls., 10 Brass, bdt., 1 Brass	Iron sand, cks., 2	Spelter, plates, 4896 Monasto C. M.	Cartrdgs.,cse 1 36 Sew, ma., cse, 1 24		Small type " .00½ @
Mason John W. & Co. Wire rope, coils, 20 Meissner, Ackermann & Co. Lot of iron, 1 Morton, Bliss & Co. Brass, bdl., 1 Morton, Bliss & Co. Brass, bdl., 2 Mf. iron, pgs., 320 2,000 Shoe nails, bxs., 12 Mf. iron, pgs., 320 2,000 Shoe nails, bxs., 12 Mf. iron, pgs., 320 2,000 Shoe nails, bxs., 12 Mf. iron, pgs., 320 2,000 Shoe nails, bxs., 12 Mf. iron, pgs., 320 2,000 Shoe nails, bxs., 12 Mf. iron, pgs., 32 105 Facks, bxs., 23 107 Sacks, bxs., 24 Mf. iron, pgs., 320 2,000 Shoe nails, bxs., 12 Mf.	Bars, 16,277	Phelps, Dodge & Co. Tin plts , bxs., 6411	S. rollers, cse 1 20 Ag. imp., pgs 15 510	Clocks, pgs 18 300 Hdw , pkgs 20 164	
Meissner, Ackermann & Co. Lot of iron, 1 Morton, Bliss & Co. Brass, bdl., 1 Morton, Bliss & Co. Beams, 16 Naylor & Co. Brass, bdl., 25 Naylor, Benzon & Co. Brass, bdl., 25 Old metal, cks., 10 Bars, 267 Ogden & Wallace, Bass, 235 Earlet, 235 Earlet, 235 Person & Co. Plakes, 105 Perkins & Choate, Casses, 850 Person & Co. Hoop iron, bdls., 884 Ralls, 2020 Person & Co. Whop iron, bdls., 884 Ralls, 2020 Person & Co. Whop iron, bdls., 884 Ralls, 2020 Person & Co. Whop iron, bdls., 884 Ralls, 2020 Person & Co. Whop iron, bdls., 884 Ralls, 2020 Cold metal, cks., 22 Antimony, cks. 35 Doll metal, cks., 22 Antimony, cks. 35 Total. Tin, slabs, 1275 Mf. iron, pgs. 320 2,000 Shoe nails, bxs. 11 190 Mf. iron, pgs. 320 2,000 Sho	Wire rope, colls, 20	St. Amant D. & Son,	Pumps, pkgs. 3 120 1 Rifles, cs 2 105	Saws, cs 2 90	Canvas, Linen & D. 3%c. @ 4 c
Morton, Blass & Co. Beams, 16 Saylor & Co.	Meissner, Ackermann &	Tin, slabs, 1975 Straus A. D. & Co.		shoe nails, bxs 11 190	White, No. 1
Naylor & Co. Pig. tons, 337 Naylor, Benzon & Co. Bars, 257 Ogden & Wallace, Base, 235 Cases, 850 Perkins & Choate, Cases, 850 Perkins & Choate, Cases, 850 Perkon & Co. Hoop fron, bdls., Rails, 2020 Spelman, Jr., W. B. Walls cks., 10 Withey & R. Guides, 128 Bars, 357 Common and the past week Bars, 357 Common and the past week St. Louis Stamping Co. Tin plts, bxs., 59 Wilson D. H. & Co. Gun caps, cs., 22 Wilson D. H. & Co. Gun caps, cs., 22 Wilson D. H. & Co. Gun caps, cs., 22 Wilson D. H. & Co. Gun caps, cs., 22 Wilson D. H. & Co. Gun caps, cs., 22 Wilson D. H. & Co. Gun caps, cs., 22 Wilson D. H. & Co. Gun caps, cs., 24 Wilson D. H. & Co. Gun caps, cs., 25 Wilson D. H. & Co. Gun caps, cs., 25 Wilson D. H. & Co. Gun caps, cs., 25 Wilson D. H. & Co. Gun caps, cs., 25 Wilson D. H. & Co. Gun caps, cs., 25 Wilson D. H. & Co. Gun caps, cs., 25 Wilson D. H. & Co. Gun caps, cs., 25 Wilson D. H. & Co. Gun caps, cs., 25 Wilson D. H. & Co. Gun caps, cs., 25 Wilson D. H. & Co. Gun caps, cs., 25 Wilson D. H. & Co. Gun caps, cs., 25 Wilson D. H. & Co. Gun caps, cs., 25 Wilson D. H. & Co. Gun caps, cs., 25 Wilson D. H. & Co. Gun caps, cs., 25 Wilson D. H. & Co. Gun caps, cs., 25 Wilson D. H. & Co. Gun caps, cs., 46 Wilson D. H. & Co. Gun caps, cs., 25 Wilson D. H. & Co. Gun caps, cs., 4 Wilson D. H. & Co. Gun caps, cs.,	Morton, Bliss & Co. Beams, 16	Old metal, cks., to	FOREIGN TRADE		Seconds
Gun caps, cs. 2 Ogden & Wallace, Babe. 235 Since St, 224 Base, 105 Casses, 850 Perkins & Choate, Casses, 850 Pierson & Co. Hoop fron, bdls., 884 Rails, 2000 Spelman, Jr., W. B. **Nails, cks., 10 Witney A. R. Bundles, 128 Bund	Naylor & Co. Pig, tons, 333	Tin plts., bxs., 59		summary of foreign	Mixed Rags 1¾c. @ 2 C. Gunny Bagging 1½c. @
Tin, ingots, 506 For the week ended October 6 :	Navlor, Benzon & Co.	Gun caps, cs., 2 Winter & Smillie,	trade movements during	the past week:	Jute Butts
Pakes, 105 Perkins & Choate, Cases, 850 Perkins & Choate, Cases, 850 Person & Co. Hoop iron, bdls., 884 Hoop iron, bdls., 884 Rails, 2010 Rail	Ban= 235 Edites, 224	Order.		October 6:	Newspapers
Person & Co. Hoop fron, bdls., \$84 Rails, 2020 Spelman, Jr., W. B. Nails, cks., 10 Witney A. R. Burdles, 128 Bars, 57 Indimulier & Roelker, Indimony, cks. 35 Quicksilver, bottles, Since Jan. 1. \$385,935,824 \$339,174,368 \$391,348,623 Included in the above were leading articles of merchandise valued as follows: Quantity, Value. Antimony. 22 Since Jan. 1. \$385,935,824 \$339,174,368 \$391,348,623 Included in the above were leading articles of merchandise valued as follows: Quantity, Value. Antimony. 22 Since Jan. 1. \$385,021 PHILADELPHIA. Office of The Iron Age, 22c South Fourth st. 2 Parallele Iron Age, 22c South Fourth st. 2 Philadelphia. Office of The Iron Age, 22c South Fourth st. 2 Philadelphia. Office of The Iron Age, 22c South Fourth st. 2 Philadelphia. Office of The Iron Age, 22c South Fourth st. 2 Philadelphia. Office of The Iron Age, 22c South Fourth st. 2 Philadelphia. Office of The Iron Age, 22c South Fourth st. 2 Philadelphia. Office of The Iron Age, 22c South Fourth st. 2 Philadelphia. Office of The Iron Age, 22c South Fourth st. 2 Philadelphia. Office of The Iron Age, 22c South Fourth st. 2 Philadelphia. Office of The Iron Age, 22c South Fourth st. 2 Philadelphia.	Perkins & Choate,	Tin plts., bxs., 4665 Spelter, plts., 22,003 Old metal, cks., 22	Total	1881. 1882. \$7,958,193 \$8,181,793	Kentucky Bale Rope " 3½c. @ 4 c,
Rails, 2020 Spelman, Jr., W. B. Spelman, Jr., W. B. Spelman, Jr., W. B. Whals, cks., 10 Whey A. R. Guidles, 128 Bars, 57 ndmuller & Roelker, Indian for the specific process. 12 Office of The Iron Age, 22c South Fourth st) Pallabelphia, Oct. 10, 1882., 1 Pal	Pierson & Co. Hoop iron, bdls., 884	Tin, slabs., 6338	Prev. reported. 372.595,536	\$331,216,175 \$383,166,230	PHILADELPHIA.
w Nails, cks., 10 w they A. R. Guides, 128 Bars, 57 ndmuller & Roelker, ndmuler & Roelker, Gun caps, cs., 4 Cles of merchandise valued as follows: Quantity, Value. Quantity, Value. Quantity, Value. Antimony	Rails, 2020 Spelman, Jr., W. B.	Quicksilver, bottles,	Included in the abov	e were leading arti-	Office of The Iron Age, 22c South Fourth st., Philadelphia, Oct. 10, 1882.
Bars, 57 ndmuller & Roelker, Gun caps, cs., 4 Brass goods. 22 \$1177 but demand is less vigorous, and there are 7,963 but demand is less vigorous, and there are	W they A. R. Buildes, 128	Old metal, pkgs., 15 Zinc,cks., 26z		ued as follows:	Pig Iron.—The market during the week
	Bars, 57 ndmuller & Roelker,	Old metal, cks., 7 Gun caps, cs., 4	Brass goods	49 7.963	out demand is less vigorous, and there are
	here, here, 522	1	Stonzes,	01 11,303 S	onto mucanone or a sugar reaction. Dun-

	9.₹., 						55		-3
Г	H	E	I	k	0	N	£	L G	Ŀ
	Llock	s and a					130		1,782 4.768
etals	Copp	er			*****		112		159 4.581
r the	13.17.17.01	ware .							0,754 1,158 2,919
ras.	Iron,	hocp, to pig to: sheet, t	ons.	******			8,391	150	0,263
Val.	Iron,	sheet, to ore, ton other, t	ons.		****		1,221	40	5,233
\$397 173	Mach	inery goods.					309 157 14	15	7,158
68 75	Old n	ietal					7 0 7 5	7	.887
250 na.	Plate	d ware.				*****	36	2	,128 2,714 ,116
319	Percu Pins .	ssion ca	ips.				40		768
mar-								2	,687
8.	Steel	blooms					35.708	132	,932 ,769
3,240 dies.		pens . er, lbs ware						21	,083
338	Tin, b	xs labs, 2,1	oo lt	s	****		13,434	74 57	,053 ,782 ,581
18,500	Th	e quan	tity	of le	eadin	g ar	ticles	impor	ted
lia.	comp	ares w	ith 1	previ	ous d	lates	as fol	lows : Same to	
11,470	Cutle	y, pkgs		We	eek.	of i	5,816	1881	11
103	Hardy fron,	vare, pl R. R. ba	gs.		6	8	829	377.50	16
2,140	Steel,	pigs pkgs		35.7	68	1,55	7,124 9,822 0,631	26,70 865,33 1,276,68	20
6,510	Tin sl	oxes abs, lbs		241,3	35	14,10	3.391	2,398,8	82
1,433	Fo	r the v	veek			ctobe			
405 15 519	Total	usly re	port	ed				\$58 44,180	,200
	Total	since J	anus	ry 1.	1882.	****		\$44,238	,645
18,000	Same	time in time in time in time in	1880					5,941	,027
585	Same	time in time in	1878			***		23,307	-395
2 245 1,500 52,804	Same	time in time in time in	1876	*****	*****			40.748 66,366 43,146	370
1,750	Same	time in time in time in	1873					42.Q26 60,283	473
2,374 480		EXI	PORT	S ZXC	LUSIV	E OF	SPECIE.		
	For	r the w	reek					188:	
700	Total.	reporte	ed a	1880	.621	\$5,53	81. 36.912 78.904	\$6,592	.524
20,800		Jan 1				-	-	-	-
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18,600					OAL		lo 41	ara i	
2,882	fair a	the A	of	busin	ess 1	n pro	ogress,	Darti	cu-
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1,646	conor	ally is	tha	t the	v hay	re go	ne far	enous	gh.
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0,835	the ar	diversi	of	the '	vear'	S Dr	oducti	on col	111-
	pared total r	with t	hat	of la	st ye	ar.	Last	28,48	he
563	goo to	ns. S	ome	are	now	of or	noin	that t	he
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83	Brass, I	neavy .		****			.0012 6	01. 0	. 6
13	Brass, Compos Lead, I	ution, h	leav;					7 .15	86 E

anything to offer for spot or early delivery In some cases it will take weeks to complet In some cases it will take weeks to complete their orders, but in the meantime it would be difficult to duplicate them. The future is, therefore, very uncertain, and it is difficult to say whether prices will decline or be maintained. As matters now stand consumption and production are about on a level, so that whatever variation may take place in the future will probably be felt at once in the market for Pig Iron. While there is no reason to suppose that there will be very much reason to suppose that there will be very much shrinkage in the volume of business, it is certain that there is not sufficient confidence among consumers as to send them into the market to buy in excess of requirements. The tightness of money and the conservative feeling generally inclines people to feel their way carefully, so that purchases to cover immediate necessities is purchases to cover immediate necessates is about as far as they will venture. The question of values, therefore, depends in a measure upon developments during the next 60 days. If there is enough business given out to keep consumers busy prices will be maintained; if the demand for manufactured with the falls of a decline will be invented. articles imported articles falls off a decline will be inevitable. So far as we can learn orders for new work are not numerous, and in some de-partments there are evidences of slackening up, but how long this is to continue seems somewhat uncertain. The crop movement has not commenced yet, and although most has not commenced yet, and atthough most satisfactory reports have been received in regard to these, it is thought that the stimu-lating effect cannot be felt for some time to come. Under these circumstances the mar-ket is slow and hesitating, but in conse-\$58,200 44,180,445 quence of light supplies prices for early de-livery are pretty steady, but a shade weaker for deferred deliveries. Sales have been at all sorts of prices, according to quantity, brand and time of delivery. A few choice brands of No. I Foundry have been sold at \$26.@ \$27, at furnace; others at \$24.50.@ \$25.50, and in some cases sales have been made as low as \$24, with intimations that still less money would be acceptable for round lots. No. 2 is fairly steady at \$22.50 1881. 1882. \$5,536.912 \$6,592.524 292 278.994 255,559.823 @ \$23.50, and Gray Forge at \$21 @ \$22 at furnace. Mill Irons are somewhat irregular, furnace. Mill Irons are somewhat irregular, but choice brands are scarce and firm at the outside quotation; others are offered at \$21, but unless of good standard quality sales are rather slow: in fact, whatever weakness there may be seems to be confined to the lower qualities of each grade. There is no foreign Iron here except Eglinton, which sells at about \$24 for No. 1 and \$21 for No. 3. Middlesboro' No. 3 is offered for ships ment at \$22.50, but there is no immediate prospect of offers being made likely to result in business.

Ressence Iron.—Notwithstanding the 297,815,906 \$262,152,347

Bessemer Iron.—Notwithstanding the large sales of Steel Rails there has been no movement whatever in the raw material. It has been predicted and expected that purchases would have to be made in similar proportions, but, so far as known, there has not been a single bid made for anything. among producers of the following producers and producers are some far enough. In novel spectacle is meet ready acceptance. meet ready acceptance.

and and Clearfield Muck Bars .- The market is fairly active and prices are unchanged, although large lots are not taken as freely as they were some time ago. Sales have been made at \$41.50 @ \$42.50, according to quantity and

> Blooms.-Business is rather slow, p ices remain as last quoted, namely: Charcoal Blooms, \$68 @ \$70; Run-out Anthracite \$59 @ \$60; Scrap Blooms, \$50 @ \$52.50, and Northern Ore Blooms, \$47.50 @ \$50.

Bar Iron.—The market is somewhat weak and uncertain, and it is hard to say what are

little demand lately, and, although the leading concerns have a good deal of work on hand, they are gradually catching up, and would be glad to see new business coming in, but, with the exception of an order for about 2000 tons for bridge work, there is no special inquiry at the moment. There is no particular change in prices, but desirable orders would doubtless be accepted at slight concessions from quoted rates, which are 3¢ for Angles, 3.85¢ @ 4¢ for Tees, and 4¢ for for Angles, 3.85¢ @ 4¢ for Tees, and 4¢ for \$2.75 @ \$2.85.

Sheet Iron.—The market is not particularly active, but there is all the business offered that can conveniently be taken. Under such circumstances, prices are naturally very firm, so that there is no change to be otations, which, in a general way, made in quotations, remain as follows:

Common Sheets, No. 28	6
Common Sheets, No. 22 to 25	44
Rest Refined 1/ % advance on the above.	
Best Bloom Sheets, No. 26 to 28	63
Best Bloom Sheets, No. 16 to 21	89

ness seems to prevail in every department, but, fortunately for the furnace men, they are so well sold ahead that they have scarcely Wrought Iron Pipe .- The demand durng the week has been active, and quota-tions, although unchanged, are inclined to be easier; quotations are about as follows: Gas and Steam Pipes, 57½ %, and Boiler Tubes, 45 @ 47½ % off list price. Steel Rails .- The market is rather quiet, and no large sales have been closed during the week so far as we can learn. Negotiations are going on, but buyers appear to want concessions which are hardly likely to be granted, now that the mills are under contract for a good portion of their winter's work. As a rule, \$45 @ \$46 is obtained for such lots as are called for on prompt delivery, with possible concessions of a dollar per ton on large lots. Steel Blooms .- There are inquiries in from different sources, but prices are thought to be too high to permit of business being done. Nominally, \$36 @ \$37, c. i. f., is quoted, but offers are only good for 24 hours at a time. Railway Fastenings .- Spikes are in good demand and firm at about $3\phi @ 3.1\phi$; Fish Plates, $2.6\phi @ 2.75\phi$; Bolts and Nuts, .75¢ @ 4.25¢. Steel Crop Ends .- There are are severa have been made for lots delivered in Pitts-burgh. There are sellers for shipment at \$24.50, Philadelphia, but no actual business has been done. Old Rails .- Buyers are very discriminatord Rans.—buyers are very discriminating in regard to quality. Choice lots of Tees would command \$28 @ \$28.50, while sales of ordinary qualities have been made at \$1 ₱ ton less money. Double Heads would bring \$29.50, which has been bid for early deliveries Serap Iron-Is scarce and firm, at about the following quotations: Fish Plates, \$33; Choice No. 1, \$29 @ \$30; medium, \$27 @ 28; Cast, \$20 @ \$21; and Stove Plate, \$16.50 Nails.-There has been some little falling off in the demand, but there is almost a total absence of stocks, so that if only small lots are taken, orders are frequently renewed. Prices are steady at \$3.65 net, and no immediate prospect of a change.

PITTSBUEGH.

Office of The Iron Age, 77 Fourth Avenue, 6 The general iron trade, while not as active

as the more sanguine expected, after a sus-pension of nearly four months by nearly all the mills west of the mountains, is in a healthy condition, and there is every indica-tion of a good fall and winter trade. Sales-men who have recently returned from the South and West report the outlook in those sections as being exceedingly promising. Already the railroads are very busy; the trunk lines are taxed to their utmost capacity. Our manufacturers generally are in good spirits, satisfied with the present and hopeful of the future, and the situation, so far as relates to general business, never was better. There is an absence of speculation, hence no probability of a collapse, as was the case a few years ago, and our manufacturers, if an at-tempt should be made to get up another boom, of which there is no prospect, would give it no encouragement whatever.

Pig Iron.—Trading has been very light the past week, and with a demand restricted almost entirely to supplying immediate actual wants, the prospect for any immediate improvement is not very encouraging. As stated in our last report, the liberal offerings recently from all points in the country have demoralized our market considerably; some that Illinois is secinf the production in the production the production are says: "There is says: "The says: much difference, in fact, that it would be in the trade as to sproduction compar. Last year the racite was 28,484,- of opinion that the aggregate for the tribution of business has been made within aggregate for the the largest year's an Anthracite Coal aftered from this, the largest year's the Anthracite Coal aftered from this, the largest year's the same time there is a general impression that it will be difficult to maintain prices untain that it will be difficult to maintain prices untain the price of the less there is a more spirited demand than the sum of the price of the same. Furnacemen here, while admitting that the advent of so many sellers has been demand than that it will be difficult to maintain prices untain the prices untained to the same time there is a general impression that it will be difficult to maintain prices untained to the same time there is a general impression that it will be difficult to maintain prices untained the part of consumers that stocks in first hands are much larger than they had calculated on, and this being the case, it is not strange that they are keeping themselves in condition, so that in the event of lower prices they will be able to take advantage of the same. Furnacemen here, while admitting the part of consumers that stocks in first hands are much larger than they had calculated on, and this being the case, it is not strange that they are keeping the many different points has created the belief on the part of consumers that stocks in first hands are much larger than they had calculated on, and this being the case, it is not strange that they are keeping themselves in the part of consumers that stocks in first hands are much larger than they had calculated on, and this being the case, it is not strange that they are keeping themselves in the part of consumers that stocks in first hands are much larger than they had calculated on, and this being the case, it is not strange that they are keeping themselves in the part of consumers that stocks in first hands are much la The constant of the control of the c

Nails .- There is no abatement in the de-Nails,—There is no abatement in the demand, and makers are assured of a good trade until the close of the year. The outlook for a good Nail trade has not been so encouraging for many years. Prices remain unchanged at \$3.40 rates, 60 days, 2% off for cash, with usual abatement of 10¢ % keg on carload lots, and upward.

Wrought Iron Pipe .- The mills are now all in operation, and as yet have accumulated no stock; as is always the case, small sizes are most in demand, and manufacturers are unable to catch up with their orders for these. Prices remain unchanged; Boiler Tubes, 45 @ 47½ % off; Oil-well Casing, 70¢ 392.

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Old Rails.—There have been no sales reported since our last, in the absence of which we continue to quote at \$20 @ \$30 for Tees and \$32.50 @ \$33.50 for Double Heads. American Tees, so it is said, can be laid down here from the West at about \$29. Old Steel Rails very dull. Commission men report that they are almost unsaleable.

Steel Rails-Are quoted low for near-by Steel Kalls—Are quoted low for near-by delivery—\$44 on cars at mill, and \$46 @ \$47 for next year. This is reversing the order of things, as heretofore near-by deliveries have ruled firm \$1 @ \$2 ? ton higher than futures, and indicates a scarcity of orders for early delivery. The mills here are all in expertion.

Steel.—There is a very fair business in all grades of Merchant Steel. Mills all in operation and prices steady at card rates.

Scrap. — Selected (American) Railroad Wrought Scrap is quoted at \$30 @ \$31 P net ton; mixed lots, \$27 @ \$28; Car Axles, net ton; mixed fors, \$27 (@ \$25; Car Ax168, \$38 @ \$40; Wrought Turnings, \$20 @ \$21; Old Car Wheels very dull, with a good many offering—nominal at \$26.50 @ \$27 % gross ton; Steel Rail Ends, \$27 @ \$27.50; Cleat Raijnes \$27 @ \$27.50; Cast Borings, \$15 @ \$16.

Railway Track Supplies. — Railway Spikes remain unchanged at 3\psi, 30 days. Splice Bars are quoted at 2\frac{1}{2}\psi\$ and Track Bolts at 3\psi\$ with square, and 3.90\psi\$ @ 4\psi\$ with hexagon nuts. There is an increasing demand for all kinds of Railway Supplies.

window Glass.—There is a fair business, although it is not what it should be at this season of the year No change in prices. Discounts, in carload lots, are still quoted at 60 and 10 % on Single, and 60 and 20 % on Double Strength. Factories are all in full operation, and labor, for the present, is settled

Coke.-Business is fair, and would be Coke.—Business is fair, and would be much greater than it is were it not for the lack of transportation. There is nothing like a supply of cars equal to the demand, and this is the most discouraging feature coke operators have to contend with at the present time, and there is not much prospect of any immediate change for the better. Prices remain unchanged at \$1.25 per ton, free on cars at ovens in a regular way, and and \$1.40 @ \$1.50 for small orders.

Petroleum .- There has been no impor Petroleum.—There has been no important change in the situation since our last report. During the past day or two prices have dropped several points, but the general situation is favorable to the producer, and higher prices are looked for. The production continues to fall off, and is now but little in excess of the consumption.

foot, net; ditto Tubing, 20¢. The improvement in oil is likely to cause an increased demand for all kinds of oil-well supplies.

Old Rails.—There have been no sales respectively. The market indicates no supplies.

There have been no sales respectively. The dealer thing quality, 12¢, 10½¢ and 8½¢, respectively; Crucible Plow, 6¾¢; Eagle Plow, 5½¢; Iron Center Plow, 10¾¢, and soft Steel Center Plow, 10¾¢.

Scrap Iron.—The market indicates no change from our last report; a quiet tendency prevails. We quote (dealers' purchasing prices, which are nominal): No. 1 Wrought Scrap, \$22 @\$23, net ton; No. 1 Railroad Scrap, \$24 @ \$25; ditto Heavy Cast, \$18; ditto Stove Plate, \$12; ditto Cast-iron Borings, \$8 @ \$9, and ditto Machine-shop Turnings \$11 @\$12. ings, \$11 @ \$12.

CHATTANOOGA.

Office of The Iron Age, Market and 8th Sts., { CHATTANOGGA, Oct. 9, 1882.

The weather has been very favorable to general trade during the week. The days have been warm with cool nights. Fall busihave been warm with cool nights. Fall business in mercantile lines opens briskly. Roads are in excellent condition for moving produce, and all sorts of country materials are being thrown on the market in considerable volume. Farmers have more money and owe less than at any period since the war. Manufacturing establishments are pushed to fill demands on them. This is especially the case with those engaged in producing any line of building materials.

Pig Lran Stocks of metal are rether.

Pig Iron.—Stocks of metal are rather lighter than they were in September. There are no changes in quotations. Wheel metals are very dull and may be fairly said to be nominal, as there is little inquiry and terms are generally private. We quote: No. 1 Foundry, \$24 @ \$25; No. 2 Foundry, \$22 @ \$23; Gray Forge, \$20 @ \$21; White and Mottled, \$19 @ \$20; Car-wheel Metal, \$32 @ \$35.

tinue rather dull at \$25, mostly on shipping account. We quote Wrought Scrap at \$23; Cast Scrap, \$13 @ \$15; Old Wheels, \$28 @

Nails.—We quote them stiff at \$3.60 rates for large bills. Small orders from stores, \$3.70 @ \$3.75. The Nail trade promises well for the makers.

Manufactured Iron.-Merchant Bars are strong at \$2.55 @ \$2.60; we quote nothing below \$2.55 in carload lots; Railroad Spikes, \$3.25; Track Bolts, \$4; Fish Plate, \$3.

Conl.—We quote: Fancy Lump, \$2.50; Common, \$2; Run of Mine, \$1.50, at mills. Coke.—We quote: Furnace Coke, \$3 at point of consumption; Foundry, 10¢ @ 12¢

Steel and Iron Rails.—We quote Iron at \$45; Steel, \$43 @ \$50; 30-lb Iron, \$47; Small T's, \$50.

FOUNDRY IRONS.		
FOUNDAL INCHE,		
No. z Hanging Rock, Charcoal	24.00 (3	25.00
Coke No. 1 Southern, Stonecoal and Coke No. 2 "American Scotch". Open Silver Gray Close Silver Gray	22.50 @ 22.50 @ 22.50 @ 22.50 @	24 50 23.00 23.50 22.50

lots.	Quotations are	1 2	
	HOT BLAS	T CHARCOAL.	
Ohio.	ıri		28.00 (29.00
	COAL	AND COKE.	
Ohio.	e rn		24.00 @ 27.00 24.00 @ 25.00
	MILL	IRONS.	

W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, reports us the following, under date of Oct. 9, 1882: We have to report a quiet but firm market for the past week, with light but well assorted stocks, and ample for the trade doing, at annexed values: doing, at annexed values :

Ref. Bar Iron, 1 to 6 x 3/8 to 1 1 10 2 6-10 @ 2 7-10	¢
" I to 4 1/2 X 1/8 to 2 1 10 2 6-10 (0 2 7-10	d
" 34 to 2, Round	
and Square \$ 10 2 6-10 @ 2 7-10	1
Hoop Iron, 11/8 wide and upward " 31/8 @ 31/4	
Band Iron, from 1 1/2 to 6 in. wide " 3 @ 21/4	
Horse-shoe Iron " 21/4 @ 21/4	
Norway Nail Rods " 51/4 @ 0	
Black Diamond Cast Steel " 12 @ 13	à
Machinery Steel " 6 @ 7	ď
Spring Steel " 5 @ 5%	ò
Common Horse Nails "10 @ 14	
Railroad spikes, 51/2 x 9-16 " 31/4 @ 33/4	è
Perkins' Horse shoes W keg of 100 lbs\$4.875	6
" Mule shoes 5.875	6
2077	*

CINCINNATI.

OCTOBER 9, 1882.—Pig Iron.—A fair amount of business has been done in the past week at about former quotations. The strike of rolling mill hands the past week has again unsettled that branch of the trade. It seems that no progress has been made toward a settlement. The supply and demand of foundry kinds remain as before. Quotations for the past week: Best No. I Hanging Rock Charcoal Foundry, \$28; good, \$27; best Foundry, \$24 @ \$25; No. 2 Foundry, \$22 @ Rock Charcoal Foundry, \$28; good, \$27; best \$23; Gray Forge, \$20 @ \$21; White and Mottled, \$19 @ \$20; Car-wheel Metal, \$32 Charcoal and Coke, \$24.50; good, \$22 @ \$23.50; No. 2 \$35.

Ores.—We quote: \$50 % Brown Hematite, \$20; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 2, \$22.50; No. 3, and 4, \$21 @ \$2.50; No. 3, and 4, \$22 @ \$2.50; No. 3, and the mill owners encounter it with but com-paratively little concern, claiming that they can place any orders they have now booked, that are at all pressing, on better terms than to submit to the present demands of labor.

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.)

duction continues for flat of any and from Raffal—New goods for any position of the communition. The far is to that these first does not be continued from Raffal—New goods for the communition. The far is to that these first does not be continued from Raffal—New goods for the communition of the form and is extended and the first flat of the continued partnership under the first of Luide partnership under the first of Luide goods. As a started result, the form and is extended and the first flat of the continued partnership under the first of Luide goods. As a started result, the form and is extended and the first flat of the continued partnership under the first of Luide goods. As a started result, the form and is extended and the first of Luide goods. As a started result, the form and is extended and continued and the first of the sever first of the good for the first of the continued partnership under the first of Luide goods. As a started result, the feed of the continued partnership under the first of Luide goods. As a started result, the feed of the latest of the continued partnership under the first of Luide goods. As a started result, the feed of the latest of the continued partnership under the first of Luide goods. As a started result, the feed of the latest of the latest the latest of the latest the la LONDON, ENG., Sept. 25, 1882. THE POSITION is strong, looked at from an all around stand-Enigration and migration have in course of distance and agains, 46; 15 and 25 at ditto, 4.50¢; 22 to 24 ditto, 4.50¢; 18 to 21 ditto, 4.50¢; 22 to 23 ditto, 4.50¢; 22 to 24 ditto, 4.50¢; 23 to 25 ditto, 52,30¢. Patent Cold-rolled Shafting, dis. 20 x; Norway Iron, n-rolled, 6¢ rates; Ubster Iron, 4½¢ rates; Lew Moor Iron, 8¢ rates; Norway Iron, n-rolled, 6¢ rates; Ubster Iron, 4½¢ rates; Lew Moor Iron, 8¢ rates; Norway Iron, n-rolled, 6¢ rates; Ubster Iron, 8¢ rates; Norway Iron, n-rolled, 8¢ rates;

amount of good advice will restrain them from trying their strengh. The one thing against them is the weakness of their trade unions in finances. Bad times have reduced their numerical and money strength to a very low ebb, and their knowledge of this weakness seems to be the only barrier against many ill-advised sehemes. The the following, under date of Oct. 9, 1882; We have to report a quiet but firm market for the post weak with likely l

taken "severally and jointly" have not undergone any marked changes within the past week. There has been no weakness, at all events, while here and there the sympall events, while here and there the symptoms have pointed in the opposite direction. Crude irons have been steady all over the country. At Glasgow, warrants have been free from fluctuations of moment, but in makers' brands striking inequalities have become apparent. A few of the favorite brands are said to be absolutely exhausted, and every day has witnessed a rise in their values. Coltness is the most consulcuous and every day has witnessed a rise in their values. Coltness is the most conspicuous example of the increase, its value having rapidly run up by I/ or I/6 a day until it is now quoted at 70/, or is not quoted at all. Other brands have not shared this boom, for the simple reason that they can be supplied in quantities equal to the demand for them. There seems to be no doubt whatever that restriction will come to an end in Scotland at the close of this month, and that several restriction will come to an end in Scotland at the close of this month, and that several additional furnaces will be placed in blast. At some of the works the managers are anxious to smelt up their accumulated stocks of ores, over £20,000 worth being said to be on hand at Monkland alone. Shipments are good, but below 1881, and Connal's stores are still being drawn upon. In Cleveland there has been no notable change, but the shipments thence are very large and the local consumption is good. Hematites rule quiet, at the rates detailed elsewhere in this letter.

Now that the quarterly meetings are again.

Now that the quarterly meetings are again matters of the near future, there is the usual amount of discussion as to what the course of prices may be. Those who initiate and carry on these discussions and speculatons know very well that the time has long gone by when the Staffordshire "list" houses dictated to the whole manufactured iron trade but it suits their suprocess to keep. houses dictated to the whole manufactured iron trade, but it suits their purposes to keep up the fiction, consequently the venerable dummy is still trotted out every three months. The fact is that these list houses have been mor affected by modern progress than any other class of iron manufacturers. Their once unrivaled products have been largely supplanted by steel in one direction, and their manufactures are rivaled on the same date quoted Coltness No. 1 at 70/per ton.

MIDDLESBORO' PIG IRON has been very quiet but prices have remained

by-the-bye, all last week, and passed an almost interminable string of resolutions, but I have looked in vain for one single word in condemnation of strikes in general, and of the proposed miners' strike in particular.

THE IRON MARKET AND PRICES taken "severally and jointly" have not

SCOTCH PIG IRON

has been firm, with a good turnover, and with quite a boom in two or three special brands of makers' iron. In warrants there has been almost a dead level, speculators being afraid to touch them until the extent and nature of the extended production shall have been ascertained. Concurrently a and nature of the extended production shall have been ascertained. Concurrently a heavy "bear" account has kept them down most rigidly. There are now 111 Scotch furnaces at work (including 12 on hematites), against 121 a year ago. In Connal's stores there are 629,107 tons (a reduction of 1180 tons on the week), against 586,802 tons a year ago, 627,186 tons at Christmas last. Shipments this year have increased by 44,-617 tons, or a total of 452,103 tons. [unortex-517 tons, or a total of 457,193 tons. Importa-tions from Middlesboro into Scotland have decreased 49.168 tons, or a total of 161,499. Writing from Glasgow September 23, James Waston & Co. said: "The Scotch iron mar-

ponding we	eek of	last	Year.	We	quote:
			2	No. v.	No. 3.
G M. B., at 6	llasgow			51/6	49/6
Clyde, at Gla	sgow			54	52/
Coltness.	0.0				55/6
Langloan,	0.6			691	60.6
iartsherrie,	* 6			62/6	54 5
Summerlee,	6.6			61/6	53.9
Carder,	10			62/	51/
Carnoroe,				56	59/
Giengarnock,	at Ard	rossa	n	56/	51 6
Echaton.				52 0	50
Daimellingtor				52 0	51/
Shotts, at Lei	th			64	56/6
Kinoell, at Bo	hess.			50	41/
Carron, at Gr	angem	outh		54.5	0.079
Junn E. o					

Sieator	OX	007	99/
Lonsdale	58/6	57/6	50/6
Workington	58/	57/	56/6
West Cumberland		A 1177	****
Lowther	58/	57/	56/3
Moss Bay			
Distington	58/	57/	56/3
Harrington	58/	57/	56/3
Solway	58/	57/	56/3
Maryport	58/6	57/6	56/0
Last week's West Coa	st shipp	nents in	cluded
14,490 tons of hemat	ne big	HOH WHI	1 1/02
ons steel rails and	blooms.	Cumb	erland
hematite ore is 14 (@	15/, net	, at the	mine,
1 177	to and	and it of	dainenink.

-																											1	Ordinary. Besseme	ŀĽ.
No.	1							,									,											. 58/ 58/0)
No.	2								۰										۰			٠						. 57/ 57/5	
No.	3			,							٠			۰														. 56/ 56/6	j
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No.	4	ž	Ġ)(Ŋ	g	e	١,						*	,							,						. 55/	
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Wh	it	e						,									,											. 54/6	
										8	C) ?	и	ŀ	ğ	,	C	τ	7	B	u	3.	E	12	Č,	T		PRICES	

are as follows:				
				Dis.
London:	1	Pric	340.	per!
20000000	£	g.	d.	cent.
Copper sheets, 4 x 4, W ton	70	10		216
Copper heathing, @ ton				21/2
Yellow metal sheets, 4 x 4. 2 h				21/2
Yellow sheathing, & b				236
Wallaroo copper, & ton	75			256
Chili copper, & tou	09	10		2/4
Best selected ingot, W ton				276
Brass wire, & D		4.5	728	21/2
Copper wire, & D			9.74	256
Composition nails, W D				276
Copper tubes, & D			9%	216
Brass tubes, & D			9	279
Sheet zinc, best brands, W ton				219
Hard spelter, @ ton				Net.
Hard spelter, special brands, & ton				Net.
Virgin spelter, & ton	17	2	6	Met.
Virgin spelter, special brands, \$				Net.
ton	27	7	6	Net.
Re-melted spelter, \$\mathbb{B}\$ ton	14	17	D	Net.
Straits tin, P ton	108	10	9.0	116
English tin, in ingots	110	8 5		2 746
Galvanized sheet iron, 18 & 20 G,				n34
W ton	13			
Galvanized sheet iron, 22 G. 12 ton				234
Galvanized sheet fron, 24 G, & ton			4.7	2%
Galvanized sheet iron, 26 G, in				234
felted cases, W ton	17	10		
I TARK THE PR. DIRCK	HE E		R2B, 78	79 63 2 79

NT.	_	_		_	
	-				-
Quicksilver. P hottle		6			
Tin plates, IC coke, & box Tin plates, IC coke, tin lined,			16	3	
how			17		
Tin plates, IC charcoal, W box.			19	6	
Cuha nickel, W ID			- 3	6	
Corman silver sheets, W D			2	8	
Bright iron wire, No. 5 to 7, W b	on	10	15		
Fencing wire, o to 6. £ ton		9	7	6	
Wire nails, o to 7. 2 cwt	11		10	3	
Bamboo sie el. 5% up. 7 ton		10		6	
Regulus of antimony, & ton		44			
Crude antimony, P ton Lead, L B. pigs, P ton		87	IO		
Lead, b. B. pigs. & ton Lead, sheets. & ton		15	15	6	
Lead, sneets, & ton		22	10	0	
Lead, pipe, \$\partial \text{ton}		37	10		
White lead, genuine dry, P ton		20	5		
Red lead, dry, 2 ton		16			
Tea lead. 2 ton		18	10		
Steel hoops, \$ ton		0	10		
Awedish ham nered bars, & ton		80			
Old boiler plates, P ton		3	15		N
old wire rope, ? ton	6. 1	4	13	6	1
old horseshoes, packed, & ton.			5		T.
Belgian bars, No. 1, W ton			17		
Belgian nailrods, No. 1		5	17	6	
Inchors, & cwt	0				
hain, Pewt				0	
LONDON (ANOTHER	W:	UB	E).		
	_	-	-Pe	r to	n
	£	B.	d.		€ s.
fronBars, Welsh (in Wales)					
f. o. b	5	17	6	to	
Bars, Staffordshire (London)					
f. o. b	7	0	0	10	8 3
Bars, North Country (in the				A	
Tees or Tyne) f. o. b	6	0	0	to	
Angle iron, North Country (in	6	-		40	
the Tees or Tyne) f. o. b Tiron, North Country (in the	6	5	0.	to	
T-iron, North Country (in the				4-	

Brass wire, r @ 20, deld., W b. Tin - English block or ingot, \(\text{Vin} - \text{Enghish block or ingot,} \)
\(\frac{1}{6}, 0, 0, \dots, \dots, \dots \)
\(\text{Ditto bars, } f, 0, 0, \dots, \dots \)
\(\text{Ditto refined block or ingot,} \)
\(\frac{1}{6}, 0, 0, \dots, \dots \)
\(\text{Fine Straits (in warehouse). 108 10 0 to} \)

ter, 44.50 @ 44.75. Iron.—In this city there is all along an active demand, yet prices are upheld at current rates with some difficulty, due, in part, to competition among dealers, and partially to artificial pressure exercised by some large concerns wishing to make contracts on a lower basis. In this manner Merchant is now obtainable at 10.75, and Flooring Iron at 20.75. Wire Mails, being negleoted, can row be had, deliverable at Marseilles, at 38.50 frames for No. 15. Whe hear from St. Dizier that the situation remains good and prices firm. Rolling mills had to pay higher prices for Pig. A Franco-Belgian company has bought real estate at Don-Sainghin for the erection of rolling mills; thus Iron interests are becoming more and more important in the Northern and Pas-de-Claisis Coal basings. The parties alluded to anticipate the cutting of the Grand Canal of the North, which is to bring that reg on into direct communication by water with Parts and Central France. The general impression in France with respect to the near future in the Iron trade is that consumption is considerable enough to maintain the present active state of affairs until midwinter. In the Haute-Marne small orders are, however, becoming less frequent; prices, nevertheless remain on the basis of 21 francs for Coke Merchant. In the Muerthe and Moselle there is no falling off in the demand; rolling mills, therefore, did not hesitate in submitting 24 Nancy to the figure of 7 francs for Pig Iron. The Longwy group sold so far two-thirds of its Pig Iron cut, at for 1882. Railway material is in brisk request in the Loire and Rhone. Rolling mills at the North are resolved not to make any concessions from the range of 19 @ 20 for Merchant. Old Rails sold at 12.55 crancs in the district. Coal, active and steady.

BELGIF M.

(Moniteur Industriel.)

SWEDEN. (Dagbladet.)

STOCKHOLM. September 23. 1882.—Iron.—From official documents just published by the Government, it appears that of rolling milis and Steel works there are at present in Sweden 56, 47 of which in Eskilstuna, employing altogether 995 operatives and turning out during the last fiscal year a joint product of 1,227,557 crowns, against 1,267,449 crowns in 1876. Foundries and machine shops there are 20, turning out 409,206 cwt., worth 4.528,157 crowns. Finished Iron and Hardware outside 2f the above were produced to the extent of 16,83,448 crowns, employing 8741 operatives.

(Borsenhalle.)

Hamburg. Sept. 26, 1882.—Iron.—On the Lower Rhine and in Westphalia the position of the Iron trade has experienced no unfavorable change, there being an active demand and the receipt of orders steady. Rolling mills are well engaged. Blast furnaces keep up the price of 6, marks, but at this figure consumers do not take it very read-(Borsenhalle.)

Specially soft mild steel sheets, for working up. V cwt 28/6 39/ Best charcoal, V cwt	31/6
Extra lengths: For each additional foot or part thereof z/ \$\varphi\$ foot \$\varphi\$ cwt extra. Extra width each additional inch z/ \$\varphi\$ inch \$\varphi\$ cwt, extra. Extra lattens: For thinner than z6 W, G. \$\varphi\$ extra up to z8 W, G, only. Circles: Not thinner than z0 W, W, \$\varphi\$ out, extra.	W. G.
TERNE COATED SHEETS, TERMS, 3 % FOR CASH.	
16 to 20 G. 21 to 24 G. 25	attens. to 26 G. 34 × 33 18/ 21/6 24/

BRIGHT TINNED SHEETS .- TERMS, 3 % FOR CASH.

CHAINS, CABLES, ANCHORS, RIVETS, WROUGHT NAILS, ETC .- TERMS, 21/2 % POR CASH Common Short Link Rigging Chain. 3-16 3/4 5-16 3/6 7-15 3/6 9-16 5/4 11-16 3/4 13-16 7/6 15-16 1
19/9 16/6 15/3 14/3 13/3 12/6 12/3 12/ 11/10 11/8 11/6 11/3 11/ 11/

Tested ditto 3d. V cwt. extra.

Best Best Crane Chain.

Best Best Crane Chain. Best chip cables, stud link (maker's test), inches.

Pewt. 11/5 11/2 10/10 10/9 10/8 10/9
Short link ditto ditto, inches.

Pewt. 11/5 11/2 10/10 10/9 10/8 10/9
Short link ditto ditto, inches.

Pewt. 11/5 11/2 11/1 11/1 11/1
Stud and link ditto (Lloyd's test), inches.

Link ditto ditto, inch

Trek-Tow Chain (made from Best Iron).

Best iron, middle link, assorted sizes, 2 to 10, 12 or 14 oxen, \$\mathbb{P}\$ owt..... Anchors, iron or wood stocks (private test), \$\psi\$ cwt. \quad \text{1} \text{2} \text{3} \quad \quad 4 \quad \text{5} \text{0} \quad \text{2} \quad \text{1} \quad \text{1} \quad \text{3} \quad \quad \text{1} \quad \text{3} \quad \quad \quad \text{3} \quad \quad \quad \text{2} \quad \quad \quad \text{2} \quad \

Best Swedish Charcoal Countersunk Horse Nails, Stamped.

(Koch & Vlierboom.)

(Koch & Vilerboom.)

ROTTERDAM, September 23, 1832.—Tin.—The advancing tendency in Tin is becoming more and more outspoken under the influence of a growing demand. Large dealings have taken place during the week in Banca Tin, all the way from 64 guilders \$\psi\$ 50 kg, up to 65,50, whereas Billiton rose to 65. At these figures there are still buyers. Distant deliveries are likewise in brisk speculative demand. Billiton deliverable in December has been paid 65.75. The general impression seems to be that a further rise impends in consequence of the docrease of stocks in Europe. While shipments from countries of production during the first half of September to Europe have been moderate, the consumptive demand has remained lively. If the latter keeps up, the statistical position will thus be susceptible of further improvement, hence holders are not anxious sellers, but, on the contrary, difficult to treat with.

AUSTRIA.

VIENNA, Sept. 24, 1832.—Iron.—Business in this branch has been lively, embrucing pretty much every article in the line of some importance. The demand is of such a pressing nature that works have to strain every nerve to fulfill at least approximately all their engagements. This refers more particularly, as has been the case during the entire summer, to Finished Iron, so that it is believed there will be declared good dividends by rolling mills as a whole at the close of the year. The situation of Pig Iron is also steadily improving, although prices have not risen since our last report. Without a doubt the fall trade will prove a most profitable one both for the producers of Pudding and Foundry Pig, provided they do not extend credits too indiscriminately. Austrian locomotive works have received some fresh orders from French railroad companies deliverable soon. In late reports we alluded to the planning in Austria of a great agricultural machine and implement manufacturing company, but we have now ascertained that it will not be undertaken immodately. On the other hand, we are informed that the Hungarian Government Railway will sell to a syndicate of capitalists its Pesth and Diosgyor machine shops, representing a value of nearly 4,coo,coo florins. This company is to be started with a share capital of \$,000,000 florins; the Hungarian Minister of Finance will have to decide whether he will sell the works at cost. Iron has been well sustained; we quote: Copper, 75 @ 05 florins \$ ton; Merchant, 115 @ 130; Sheets, 105 @ 195, and Beams, 125 @ 130. Metals.—The market has remained steady; we quote: Copper, 75 @ 05 florins \$ ton; Merchant, 115 @ 130; Sheets, 105 @ 195, and Spelter, 20 @ 22. (Austrian Trade Journal.)

EAST INDIES. (Schmidt, Kustermann & Co.)

Penano, Aug. 12, 1882.—Tin.—The market opened at \$13.37, with lively demand for Singapore and China. Receipts were 7400 piculs, while Europeans took 3600, and Chinese as many. The price meanwhile advanced from \$13.30 to \$33.40; at the close, however, dropped off again to \$32 \$2 picul. Stock in bazaar, 27.0 piculs. Exchange, 3/9%.

NEW PUBLICATIONS.

Transactions of the American Society of Meghanical Engineers. Published by the Soci-ety at the office of the Secretary, 239 Broadway, New York City.

New York City.

Vol. II of the Transactions of the American Society of Mechanical Engineers has just reached us. It is handsomely bound, and embraces the different papers read and discussed at the Hartford, Altoona and New York meetings. The book comprises 563 pages, and will be found to contain an abundance of highly interesting and instructive matter. Taken altogether, it forms a very valuable addition to any library, and should not fail to be procured by all interested in this direction. this direction.

REPORT OF NEW YORK STATE SURVEY FOR 1880. Size, 9 x 5% inches.

The fifth annual report of the Board of Commissioners of the New York State Survey, containing their proceedings during the year 1880, has come to hand, and embodies a number of tables relating to the prelimin-ary geographical positions of various stations in the different counties of the State. These tables cover about 40 pages, and are followed by several tables giving the geographical po-sitions of stations of the New York State Survey on the Hudson River, between Troy and Hudson. At the end of the volume are tables of elevations of the tops of the State survey monuments above the mean tide at Governor's Island, obtained by trigonometri cal leveling, and tables showing the approximate declination of the magnetic needle a the different stations. The report is, more-over, accompanied by five maps, one of East-ern New York, one of Central New York, a third of the Hudson River, from Troy to Albany, a fourth of the river from Albany to New Baltimore, and the last of the Hudson River, from New Baltimore to Hudson. The triangulations of the river have been executed in co-operation with Lieut. J. H. Willard, U. S. Engineer in charge under Gen-

...17/6
STRENGTH OF WROUGHT-IRON ERIDGE MEMBERS
By S. W. Robinson, C. E. Size, 6 x 3½ inches
Price, 50 cents. Published by D. Van Nostrand.

The examinations of bridges and the determination of the various strains in the different members, necessitate the use of formulæ which, as many of our readers have undoubtedly already experienced, must be obtained from a variety of sources and text books on the subject, thus necessarily entailing a loss of time and, very often, a large amount of labor. The avoidance of a repetition of this labor on the part of those who may require these formulæ, was considered Scupper nails, inches 25/ 21/6 20/ 19/3 18/9

Above prices include delivery in London or Liverpool. Above prices include delivery in London or Liverpool.

FOREIGN.

F

ocks, Minerals and Stocks. By Frederick H. Smith. Size, 71/2 by 51/4 inches. Published by the Railway Review, Chicago.

Mr. Smith, in the above work, has at Mr. Smith, in the above work, has at tempted to cover a large field in comparatively few words, and, when the size of the book is considered, the number of pages being 234, we think it will be admitted by many that the subject must have been treated superficially. Doubts as to the merits of the look in this direction will not be discretion. book in this direction will not be dispelled by an inspection of its contents, and the author, in trying to be brief, has rendered the mean in trying to be brief, has rendered the meaning obscure and the information of little value. While these remarks apply more particularly to the first part of the book, we should state that the portion devoted to stocks is calculated to the street was attacking and only process. lated to attract more attention, and embraces some very interesting and instructive points. This part of the work comprises some 46 pages, and would form a desirable little volume by itself. A vein of hidden playfulness runs through the whole work, and while it is runs through the whole work, and while it is perhaps intended to render the subject some-what more attractive, we think that its omis-sion would, in some places, have added to rather than detracted from its merits.

RAILROAD ECONOMICS. By S. W. Robinson, of the Ohio State University. Size 6 x 3% inches. Price, 50 cents. Published by D. Van Nostrand.

The author states in the preface that a law of Ohio makes it the duty of the Commissioner of Railroads to inquire into the safety of the means employed in railroad travel. To this end an inspection service has been organized, which aims to examine and report the condi-tion of all the railroads of the State. Though the immediate object of the service is, if pos-sible, to increase the safety of travel by detecting errors of judgment, seeking out any oversight of defect or weakness that may by any means have occurred, and to extend a uniform system of examination of actual working conditions to all the roads of the State, yet the good opportunity furnished for general observation that may be made subject of comment and discussion should not pass unimproved.

The small volume here considered has this object in view, and without aiming at criticism, it seeks to bring out such facts and call attention to such features of railway practice as shall assist the different roads in an effort to arrive at a uniform standard of excellence. Professor Robinson, in the course of his remarks, dwells upon many disturbing agents ordinarily met with in rail-road practice, and offers many valuable and practical suggestions, calculated to enable the reader to adopt proper measures in case of any emergency. Wooden and iron bridges, testing and selecting material, stone archesties, lock-nuts, &c., are dealt with in turn, and a number of examples are given in con nection with field practice. A table for fa-cilitating the fieldwork of easement curves is also annexed, and may render good service in many instances. The book contains a con-siderable amount of information in a condensed form, and its favorable reception cannot be doubted.

TRADE PUBLICATIONS.

Twist Drills, Taps, Self-Feeding Reamers, Cutters, &c.

A very neat and attractive catalogue, issued by the Cleveland Twist Drill Company, of Cleveland, Ohio, has just come to hand. It comprises some 16 pages, and is provided with numerous engravings, illustrating their different manufactures. The first page is devoted to the speed of drills, and contains a table showing the diameters of twist drills, and speaked and sold in the markets. as usually made and sold in the markets from 1-16 inch upward, and also the number of turns per minute that each size should make in order that its periphery should have the most advantageous velocity per minute when boring in steel, iron and brass. These velocities are given as follows: On steel, 15 feet per minute, when in the condition usu ally worked; wrought, malleable and cast iron, 20 feet per minute, when in usual working condition; brass and kindred metals, 25 feet per minute. Page 2 is provided with a table showing the different sizes of tap drills that should be used when a full thread is to be tapped in a hole. The prices and dimensions of taper and straight shank drills, drills for reamers, bit stock, drills for metal or wood, machine or nut taps, milling cutters, wood, machine or nut taps, mining cutters, &c., occupy the several other pages of the catalogue, forming a very convenient book of reference for purchasers. The table given on the first page is valuable in many respects, and will undoubtedly be of use to some of our

The Blacksmith's Journal.

Messrs. Day Brothers, of 419 and 421 North Second street, Philadelphia, have just North Second street, Philadelphia, have just sent us a pamphlet bearing the above title, and embracing 16 pages, which present in an agreeable and very attractive form the various blacksmiths' supplies turned out by them. Among these appliances we would mention carriage and tire bolts, wagon skeins, fifth wheels, forges, blowers, tire benders, drills, &c., each of which is shown in one or more supersyings with which the benders, drills, &c., each of which is shown in one or more engravings, with which the catalogue is liberally supplied. The latter is about 10½ inches long and 7 inches broad, and is provided with a buff cover, while the printed pages are provided with a tinted border. The publication will be found very handy by intending purchasers, and Messrs. Day Brothers will be pleased to send a copy of the catalogue free on application.

it has partially set it is beaten with a wooden pestle and smoothed. This beating, when applied to the cement, asphalt, or even a quicklime floor, seems to be the secret of great durability. During the process of setting it appears that the ramming of the material together and general consolidation adds greatly not only to its surface smoothness, but to its durability and hardness. The new Vulcan cement is said to contain a large pro-portion of blast furnace slag and the resi-duums of sulphuric acid manufacture. The secret of its hardness, we presume, is trace-able to the formation of an oxide of iron in the mass, which is no longer capable of being acted upon by any of the ordinary liquids used in the arts. It is said to be so hard as to resist very considerably the action of a cold chisel. This great hardness would make it very valuable for floors, because it would obviate the common necessity of protecting the cement or concrete bottom by a layer of

METALLURGICAL NOTES.

Tempering Bessemer Steel Wire.

Mr. H. Carter, of Manchester, England, has recently devised an apparatus by means of which, it is claimed, a more even "temper" than has hitherto been feasible may be given to Bessemer or Omer steel wire employed for telegraphic cables or other purposes. The invention consists of a single or double furnace, through which pass longitudinally a series of troughs or tubes (placed preferably side by side), their ends outside the furnace wall being slightly elevated, so that the tubes can by filled with spelter or lead, which is kept in a state of fusion by the heat of the furnace. The wires from the reels pass through these tubes and become raised to a red heat, and then pass to another portion of the apparatus, consisting of a shallow vessel which contains spirits of salts. The wires are caused to dip into this vessel by passing under a roller immersed therein. This ves-sel is supported on brickwork, and is covered over so that the condensed vapors may be collected and conveyed away (preferably through the furnace flues). This cleans the wire, which then passes through a similar vessel (not closed) containing a solution of lime and sulphate of copper, to give the same an anti-corrosive coating, and finally passes through tubes or flues in another furnace for baking the same, and then passes to the reels or blocks on to which it is coiled for use.

Banking Up Blast Furnaces.

Referring to a recent notice in our columns of the banking up of No. 2 blast furnace of the Pennsylvania Steel Company and the relining of the stack, and also of the banking up of No. 1 furnace of the Phænix Iron Company for 20 weeks, Mr. John Birkin-bine, of Philadelphia, informs us that banking or damping up is not an unusual opera-tion, nor is relining the stack with fire in the furnace novel. He states that Firmstone de-Mining Engineers several years since, and that, if he remembers correctly, the Emma Furnace, Cleveland, was banked up for 44 weeks. Since our first notice the Phonix Furnace has been successfully started up and is now giving very satisfactory results.

Silk in Hungary.

The industrial resources of Hungary are about to be augmented by a somewhat im-portant addition in the shape of a new de-velopment of the culture of silk-worms. A report just made by the Government Com report just made by the Government Com-missioner charged with superintending this branch of industry gives some details show-ing how great is the progress made by the keepers of silk-worms in the kingdom during the last three years. Thus, in 1880, the communes where silk-worm breeding was regularly carried on numbered only 109, and the persons engaged in the produc-tion of silk only 1059, whereas last year the number of communes had risem to 426, and that of the producers to nearly 3000. The that of the producers to nearly 3000. The produce in the first of the two years was only about 20,000 pounds of cocoons, whereas in 1881 it was about 83,000 pounds, or fully 4 times as much. The silk produced in the latter year was sold by the Commissioner in Italy for 63,000 florins (1 florin=about 40 instruction in the art taught at this school, and thus, on returning to their own places, be able to direct the ideas of their neighbors, both old and young. Finally, the Government has defrayed the cost of nearly 30,000 mulberry trees, and thus set a good example for the planting of other trees of this species, which, it seems, grow very readily and well in the soil of most parts of Hungary. It is suggested, also, that such trees should be set along the public roads and the open spaces owned by municipal and communal authoriowned by municipal and communal authorities, and this would, no doubt, be a good plan. Pursuing this plan it would be profitable to start factories in the country instead of sending the raw silk to Italy, and thus to increase still further the economic value of the newly introduced industry.

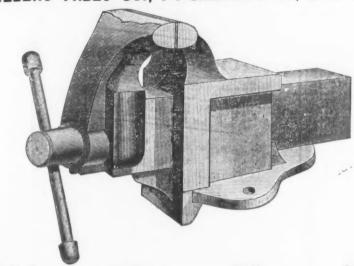
One of our New York Iron manufacturers is filling an order for South Africa, in a re-gion back of Port Elizabeth, the iron to be used as a substitute for wood in erecting an American windmill, on account of the ravages of insects The order was accompanied by a photograph of hailstones 3 inches in diameter, also of fragments of corrugated iron which the hailstones had completely

MECHANIC'S VISE.

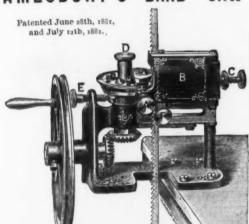
we are laminar with all the best views in market, which is Mechanic's Vise is better, having everything of value in the others, and in a dition a steel-faced anvil, which the others have not. We append the weight of each Vise, with the price, by which it will be seen that they cost less than other first-class Vises of equal weight.

Those who are fitting up shops will find it a good thing to look into this matter. We make a large discount to dealers, which they will probably divide with consumers who buy in lots.

MILLERS FALLS CO., 74 Chambers St., New York.



FILING MACHINE. BAND SAW



Will Save Its Cost in a Few Weeks.

Any boy that can turn a crank can file a band saw in from five to ten minutes, more accurately than an expert filer can do the same by hand in one hour. Keeps the teeth even and level, and enables the saw to do more and better work with much less strain. Pronounced by users to be the best labor-saving machine ever introduced

First Premium and Diploma of St. Louis Agricultural and Mechanical Association 1881, Awarded for

Best Band Saw Filing Machine.

Is sold at a price within the reach of every one using a band saw. Reduced Price List.—Net price, including 20 files, §2; thin corner and facing files, per lozen, \$1.20; thick beveled files, per Jozen, \$1.80. Terms strictly cash. Send for Catalogue and Testimorials.

G. W. Amesbury & Co., 3101 & 3103 Chestnut St., Phila., Pa.

Forged Horse Nails.

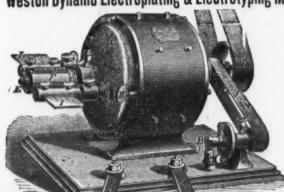
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For Nickel, Bronze, Brass, Copper and Silver Plating. and Silver Flating.
Over 1000 machines in use.
Are used by all leading stove
manufacturers.
Experienced men sent to put
up machines and instruct purchasers.

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We call attention to infringements of the Weston Machine in which Automatic Switches are used to prevent change of current. The Weston Co, are

adoption of these ma-nes will certainly lead to at loss to parties purchasing using them. MANUFACTURERS OF ast Nickel Anodes, Pure Nickel Salts, Polishing Materials.

New York Office, 92 & 94 Liberty St. Manufactory, Newark, N. J.



Variety Iron Works. KYSER & REX.

MANUFACTURERS OF Hardware Specialties, Iron Toys, Novelties and Housefurnishing Hardware. Main Office and Factory, Trenton Ave. and Margaretta St., Frankford, Philadelphia

Branch Office, 11 North 4th St., Phila. Hardware specialties manufactured to order.

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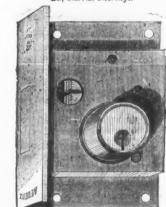
BLACK IRON VARNISHES

PAINT WORKS,

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(Successor to Barres & Deits,) Manufacturer of Store Door Locks, Night Latches, Padiocks, Drawer Locks, &c., with Flat Steel Keys,



Durrie & McCarty, Agents, 97 Chambers & 81 Reade Sts., New York.

THE FORSYTH SCALE CO., YOUNGSTOWN, O.,

FORSYTH'S STANDARD SCALES Counter, Portable, Dormant,

Stock and Hay, and R. R. Track

SCALES.

Call Special Attention to their

SUSPENSION HAY & R R. TRACK SCALES.

Also, Warehouse Trucks and Letter Presses. PRINCIPAL WAREHOUSES,

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PRIZE MEDALLISTS:

Exhibitions of 1862, 1865, 1867, 1872, 1872, and only award and medal for Noiseless Steel Shutters at Philadelphia, 1876; Paris, 1878, and Melbourne, 1881.

CLARK, BUNNETT & CO., LIMITED.

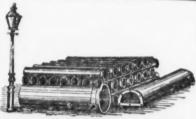
Late CLARK & COMPANY. Original Inventors and Sole Patentees of Neiseless Self-Coiling Revolving

STEEL SHUTTERS. FIRE AND BURGLAR PROOF. ALSO IMPROVED ROLLING WOOD SHUTTERS. Of various kinds. And Patent

METALLIC VENETIAN BLINDS.

Endorsed by the Leading Architects of the World.

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Cast Iron Pipe FOR WATER AND GAS,

Lamp Posts, Valves, &c., Mathew's Pat. Anti-Freezing Hydrants. 400 CHESTNUT STREET.

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LIGHT GRAY IRON CASTINGS.

Metal Patterns,

Iron Toys and

Hardware Specialties Illustrated Catalogue of con Toys sent on appli-

L. COES'

Genuine and Mechanics PATENT

Screw Wrenches

L. COES & CO.,

Worcester, Mass.

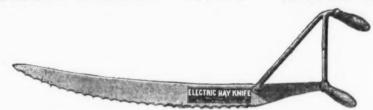


Our Genuine Wrenches are made with straight bars, full width and enlarged jaw, having ribs cast inside, which strengthen the jaw and give a tull bearing on front of bar. These improvements, in combination with our new ferrale, made with double bearings, an iron tube, fitted to the shank and resting against the lower bearings, raidly held in position by the handleand nut, effectually preventing back thrust of ferrule (see sectional view), verify our claim that we manufacture the heaviest and strongest Wrench in the marke? None genuine unless stamped

L. COES & CO., Worcester, Mass.

Warehouse, NEW YORK.

97 Chambers and 81 Reade Sts., DURRIE & McCARTY, Sole Agents. ELECTRIC HAY



A perfect Implement for cutting Hay and Straw, or even Muck or Turf. Just the article for cutting Silos. The handles are so arranged that the operator can stand erect and put his strength directly upon the Knife.

The shape of the teeth gives the Kuife more cutting edge than any other Hay Knife. The Blade of the Extra Knife is solid cast steel, gold bronzed and polished. The Blade of the No. 2 is steel, with iron back, painted green.

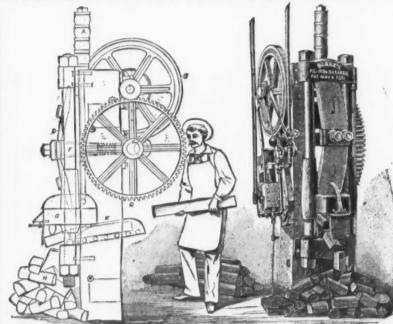
ELECTRIC HAY KNIFE LIST:

EXTRA CAST STEEL, per dozen, - -No. 2, STEEL, per dozen, - - -

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No. 625 Market Street, Philadelphia.

BLAKE'S PAT. PIC IRON BREAKER.



and successful machine for breaking pig iron into any length desired, with rapidity and Besides saving in cost of breaking by hand, it secures the greatest economy in melting, achines already in use. Every machine guaranteed against breakage of parts. Requires ny. Besides saving in cost of breaking by hand, it secures the grad machines already in use. Every machine guaranteed against biree horse-power. Can be run by belt or have small engine attack Send for Circulars, Prices, &c.

BLAKE CRUSHER COMPANY,

Sole Makers, 85 Orange Street, NEW HAVEN, CONN.

INCORPORATED MAY, 1882.

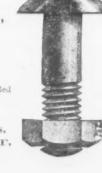
PAWTUCKET MFG. CO.,

BOLTS, COLD PUNCHED NUTS

AND WASHERS. Iron and Steel Set Screws, Cap Screws, Forged or Miled CHAIN LINKS, STIRRUPS, LEVERS, &C.

ALL KINDS OF COLD PUNCAING, Webb's Revolving Forge Furnaces.





INDUSTRIAL ITEMS.

"The Goss Iron Works" is the name "The Goss Iron Works" is the name adopted by the wooden ship builders of Bath for a large plant which they propose to establish in that city, and for which they have anade liberal stock subscriptions. Up to this date \$90,000 have been secured. At a public meeting held last week to fill up the list, nearly all the local builders participated, in the boliof that "the ship of the future" includes steam auxiliary, and that it is better to anti cipate coming events rather than wait for

the vein is found to be 33 feet, all good slate, but less than 3 feet which is hard rock. The lowest level yet reached is 35 feet. The slate will be all shipped to Boston.

Work has begun upon the foundation of shops in Bath, on the site of the old Rice mill property. The buildings are to be 60 feet wide and the dock filled in even with the river front of the wharf.

The Pratt & Whitney Company, at Hartford, are filling some special orders on high-class tools for two of the largest firms in Birmingham, England The full force of workmen are employed, and there is a con-siderable increase in the number of orders at home from agricultural implement makers and for railway tools.

MASSACHUSETTS

Amos P. Tapley, president, Frank F. Stanley, treasurer, and A. P. Tapley, F. F. Stanley and Chas. S. Randall, directors of the Stanley Manufacturing Company, capital stock, \$100,000, organized for the purpose of manufacturing and selling machinery, have filed energy of incorporation. filed papers of incorporation.

The manufacture of the Leader sewing machine has begun at Springfield. The company have their headquarters at Cleveland, Ohio, and their capital is \$250,000.

The Cheney-Bigelow Wire Works, Springfield, have secured additional room, in which they have placed new looms for weaving wire cloth and new wire-drawing machinery.

At Brockton, Sweetser & Merritt, machinists, are employing their full force of hands ists, are employing their full force of hands in the making of upright drills. They have recently finished eight 22-inch drills, and have orders for a number in smaller sizes. They also carry a good list of machinery used in tack and shoe-nail manufacture as well as in the line of boot and shoe machinery.

The New England Specialty Company have shipped during the last six months 40 barrels of small screw-drivers to New York, and have large orders unfilled. They are making large quantities of Leavit's "Common Sense" can opener, but recently patented which is said to be the best, simplest, most practical and the easiest working can opener in use at the present time.

PENNSYLVANIA.

Trade orders for "Miller's Six-Lever" improved padlock, made by D. K. Miller Lock Company, of Philadelphia, are very active this season, and the output promises to be double that of any previous year. This company now has requisitions from several leading railroad companies, both home and foreign. Since taking the prize at the Melbourne International Exhibition, the export demand has unexpectedly increased, so it is now an important factor in their business. The company claims that its "Master Keyed Padlocks" are without a rival. The well-known firm of Fairbanks & Co. are their principal factors, and show a very valuable principal factors, and show a very valuable line of the above goods.

Mr. Clark Merchant, of the firm of Merchant & Co., Philadelphia, has bought a valto the rear and opposite their present large warehouse, which runs the entire length from Arch to Cherry street. The property purchased is 130 feet deep, and runs back to Cresson street, thus giving teams, &c., an access to each end of the premises. The location is specially valuable to Merchant & co., and will prove a much needed relief to their rapidly extending business.

35,000 to \$10,000. It has a working force of 325 men, and the monthly pay roll is \$20,000. The increase in the capacity is all in the direction of hot-polished shafting, the production of which is being doubled.

The new wall works at Mingo Junction, being

South Atlantic States to manufacture the works have room for 120 nail mach only 100 will be put in at the start. which have increased to such an extent that the Buckeye Company at Salem, Ohio, owners of the patents, found it necessary to establish their manufacture in the East, and selected Philadelphia as the best location.

The Her Steel Company of Chicago has CLEVELAND, OHIO. Selected Philadelphia as the best location. The Kensington Engine Works have been organized under the management of Mr. H. C. Francis, at present general manager of the United States Electric Lighting Company of New York. Mr. Francis was for many years connected with the well-known house of Wm. Sellers & Co. The new concern is quite busy on engines and hydr ulic work for the new steel works at Scranton.

Mesen Wester Tardie & Co.

Messrs, Watts, Twells & Co. (limited) of also Vestal Furnace, Lancaster county, have and boiler settings.

Investigation of the street of the consumption of the consumption of the street of the consumption of th business, and has opened an office at 326 Walnut street, Philadelphia, as iron broker

and commission merchant. A fire occurred at the "little mill" of J. Wood & Bros., in Conshohocken, last week, by which it was entirely destroyed. The mill is situated between what is known as the 'big" rolling mill of J. Wood & Bros., and the foundry and machine shops belonging to the same firm. The dimensions of the building are 250 feet long by 75 feet wide. The engine and rolls were not damazed, but the machinery, together with the other woodwork of the structure, is a total wreek. The insurance will probably total wreck. The insurance will proposely cover the loss. There are various theories a float as to the origin of the fire. The prevailing theory is that it was the work of an incandiary.

The following table, from the Marquette Mining Journal, exhibits, in gross tons, the total lake shipments of iron ore from

The 30 engines of the dirt-burning pattern by the Philadelphia and Reading Railroad Company, have all been delivered with Company, have all been delivered with the exception of six, which will be furnished next month. The company is now using 600 tons of coal dirt per day as fuel, which is treated at the following colleries: Boston Run, Girard and St. Nicholas. The houses which have been built specially for the treat-ment of this coal have been supplied with the machinery, and will be ready for work this month. this month.

PITTSBURGH AND VICINITY.

A charter has been granted to the Pittsthem.

The Williams Slate Company have recently commenced operations in Brownsville. It is about a year since they began work on the manufactory and excavating. The width of Theorem 1. The width of Theorem 2. The width of Theorem 3. The width of th of Verona. The capital stock of the com pany is \$160,000. One of the company said last week that its plans had not yet been fully last week that its plans had not yet been fully matured, and that a location had not been positively decided upon. At present a blast furnace will be erected, and the site will either be at Verona, on the Allegheny Valley road, or at Braddock's. It is probable, also, that the company will engage in the manufacture of iron and steel as a company. At present all of those whose names are more resent all of those whose names are menned are interested in various other iron and steel manufacturing concerns, and can easily utilize the product of a furnace, re-serving to themselves the profit now paid to other manufacturers of pig iron.

The report that Everson, Macrum & Co. are about to put up a new bar mill at the Scottdale Mill, is authoritatively denied by

It is understood that R. J. Anderson will start up a new steel mill, with Doctor Hostetter as financial backer. A company has been formed, under the firm name and title of Anderson, DuPuy & Co., Mr. DuPuy being a son-in-law of Doctor Hostetter. Mr David Shaw, late manager of the Siemens Anderson Works, is also interested in the new company, and will probably be the man-ager of the works. The company have secured property on the line of the Pittsburgh and Lake Erie Railroad, at the mouth of Chartiers Creek, and operations will be commenced at ouce. Within 60 days it is expected to have the works in running order. The capacity of the new concern will be 10,000 tons of finished steel annually. It will be built after the most approved style, and will contain the latest and most improved Siemens furnaces.

OHIO.

The work of clearing away the debris of the Nail City Glass Works, at Bridgeport, lately burned, has already begun, and the works will be rebuilt immediately.

The buildings of the National Machinery Company, of Cleveland, which are going up at Tiffin for the exclusive manufacture of bolt and nut machines, are being rapidly proceeded with, and, judging from the archi-tectural designs, the carrying out of which is being supervised by mechanical engineers, will provide models of how works should be constructed for heavy machinery, with a view to the avoidance of vibration.

The Niles Fire Brick Company, at Niles have completed their new works, near the Thomas Furnace. They are making a specialty of fire-brick and blocks for iron, steel and glass works, out of the Thomas veral fire-clay. They have orders booked ahead for some time. The works are under the management of J. R. Thomas, who has been engaged in the business for over 30 years.

The Miller Chain Company, Akron, manufacturers of chain, employ 50 hands. Trace and fancy chains which they are turning out merit notice; also their agricultural chains, a prime specialty. They ship all over the Union, and were never more busy than at

The Smith Foundry Company, New Phila delphia, has been incorporated, with a capital

The Akron Iron Co.'s rolling mill has its capacity enlarged by the expenditure of \$35,000 to \$40,000. It has a working force of 325 men, and the monthly pay roll is \$20,-

The new nail works at Mingo Junction, being The Kensington Engine Works, Beach and Vienna streets, Philadelphia, have secured the exclusive license for the Middle and in operation by the first of next month. The works have room for 120 nail machines, but

The American Tin Plate and Steel Tool Company, South Chicago, have advertised for bids on a new building, 25 x 85 feet, and also for the construction of steel furnaces

The Chicago Polished Steel Shafting Company have purchased Lamb's foundry, for some years shut down, situated on the cor-ner of Torrence avenue and Ninety-eighth

The Calument Iron and Steel Company have added a force of 105 nailers to its establishment. The nail mill will now be run night and day.

That portion of the Chicago Tire and Spring Works burnel recently at Melrose is being rapidly rebuilt, and the entire estab-lishment will be in full operation within a week

The McKenney Tubular Rail Company contemplate starting works at South Chicag for the manufacture of its patent rails.

upper peninsula ports the present season, up ordered from the Baldwin Locomotive Works to and including October 4, together with by the Philadelphia and Reading Railroad the amount shipped during a corresponding period last year

1,432,2 °2 790,850 52,708 43,296 577,281 44,522

Showing an increase of 555,893 tons.

MISSOURI.

We clip the following from the St. Louis Age of Steel, regarding the industries of that city: The Granite Iron Rolling Mills are running day and night. The Standard Stamping Company have completed the erection of their new machinery. The Buck Stove Company are running their works to their fullest capacity day and night; the company report a regular rush of orders. Ferd Messmer's Faucet Manufacturing Com pany are running their works overtime, and have recently put in a new turret lathe and other machinery. The Westlake & Button Novelty Works Company are running their works to full capacity, and report a large increase in orders for pile drivers and der-

The disadvantages of colored signal lights were very well illustrated by a series of experiments which were recently made by Mr. Prendergast, of the Savannah, Florida and Western Railway. They were made with red and white lights, set upon stakes o feet apart and 7 feet above the ground. At a distance of 1168 yards the red light was barely visible, and the red and white lights seemed very close together. A test of two bull's-eye lanterns, one red and one white, each 5 inches in diameter, was made, and at 1752 yards both lights showed, but were nearly together. At a distance of 1898 yards the red light disappeared, but the white light still showed plainly. A red 5-inch bull's-eye was against a red hand lantern, and at 1383 yards the red light and lantern disappeared. In all these tests, which, unfortunately, did not include green lights, the white lights were still plainly in sight when the red ones had ceased to be visible. If blue lights had been used, they would have disappeared at a much shorter distance than the red.

THE NEW HAVEN COPPER CO.,

SOLE MAKERS OF

LISHED COPPER

Under Patent of T. James, Sept. 12, 1876. ALSO MANUFACTURERS AND DEALERS IN

BRAZIERS AND SHEETING COPPER.

Kettles, Bottoms, Bolts, Circles, &c.

290 Pearl Street, - NEW YORK

THE ELECTRIC LIGHT TORCH. The Cheapest and Best Light in the World.



This Torch Vaporizes Common Coad Oil and is especially adapted for Workshops, Foundries, Storerooms, Blacksmith Shops, and for Street purposes. They make a strong white light, equal to 6 ordinary Gas or lamp lights. These torches are made strong yet simple in construction.

AGENTS WANTED. A sample torch will be sent to any responsible

party on, say a week's trial. ed on applica

HOOSIER SAW WORKS W. B. BARRY, Saw Manufacturer,

132 & 134



South Pennsylvaria St. Indianapolie, Ind.

Swages, Gummers, Files Belting & Emery Wheels ALL WORK FULLY WARRANTED

FRONT RANK OIL

VAPOR TORCH

American Vapor

Con CLEVELAND, O.



A. NORTHROP & CO., MANUFACTURERS OF

Northrop's Patent Cap Seam Iron Roofing,

Northrop's Pat. Paneled and Crimped Ceilings.

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CRIMPED IRONS FOR ROOFING AND SIDING, OF VARIOUS STYLES.

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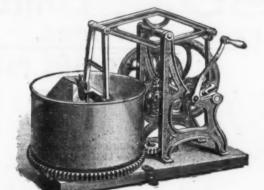
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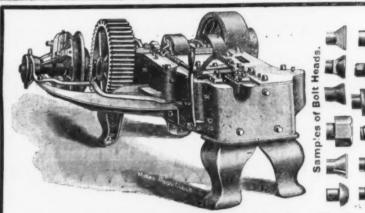
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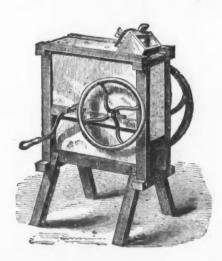
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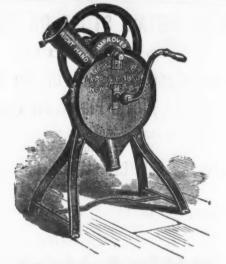


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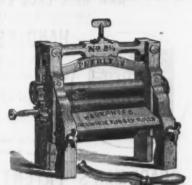
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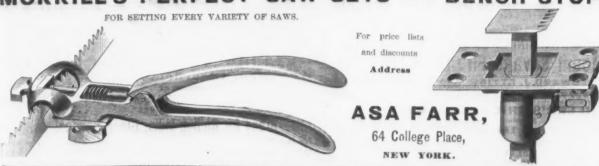


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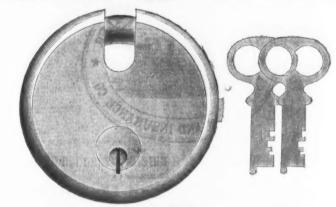
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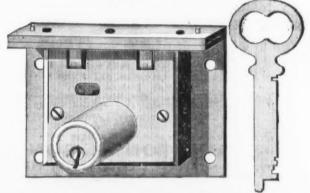
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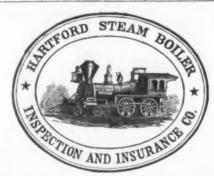
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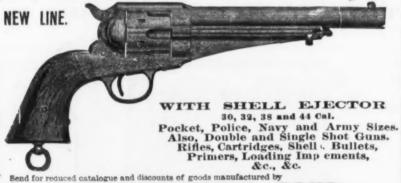
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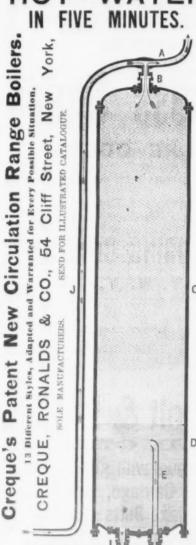


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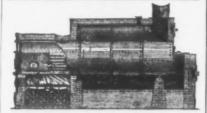
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Ostrander James & Son, Troy, N. Y.

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Watson Fire Brick Co., Perth Amboy, N. J.

Woodland Fire Brick Co., Woodland, Pa.

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White Mountain Freezer Co., Laco
Ice Creepers.
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Philadelphia. Picks, Makers of.
Picks, Makers of.
Picks, Makers of.
Picks, Makers of.
Picks, Makers of. Pipe Cutters.
Pancoast & Manle, 243 & 245 53d st., Philadelphia...3 Pines. Fittings. etc.. Makers of. McNab & Harlin Mfg. Co., & John. N. Y. MCNAD & Harin ang. On Solina States of, McNeal & H., Burlington, N. J. Mellert Foundry and Machine Co., Limited, Reading, Pa Reading fron Works, Philadelphia, Pa Wood R. D. & Co., 400 Chestaut, Philadelphia, Wyckoff & Elmira, N. Y. Plane Irons. Manufacturers of. Buck Bros. Milbury. Mass........ Globe Mfg. Co., Middletown. Conn. Planes, Manufacturers of. Stanley Rule and Level Co., 22 Chambers, N. Y. Plated Ware. Hall Elton & Co., 47 E. 13th. N. Y. .. Plumbers' Materials. Manufacturers of gverbart. Jas. M., Seranton Pa. Poish. The Lustro Co., 171 Duane, N. Y... Power Hammers. Dieneit & Eisenhardt. Philadelphia, Pa. Dieneit & Eisenhardt, Fhiladeiphia, Fa...
Presses, Power, Makers of,
Beecher & Peck, New Haven, Ct.
Bliss E. W., 167 Pirmouth, Brooklyn,
Merriman A. H., West Meriden, Conn.
Niagara Stamping and Tool Co., Buffalo, N. Y
Poerless Punch & Shear Co., 38 W, Dey, N. Y.,
The Stiles & Farker Press Co., Middletown, Ct. Pressure Regulators.
Curtis Regulator Co., Boston, Mass. Printers. Printing Presses. Pulicys.

Hartford Engineering Co., Hartford, Conn.

James Smith & Co., 137 Market, Philadelphia, Pa.

Penfield Block Co., Lockport, N. Y. Pantield Block Co., Lockport, N. Y.

Pannes, Makers of,
Clark Bros., Belmont, N. Y.
Dean Bros., Indianapolis, Ind.
Douglas W. & E., Middletown, Conn.
Mercer B. F., Alliance, O.
New England But Co., Providence, R. I.
Rumsey L. M. & Co., St. Louis, Mo.
Silver & Deming Mg. Co., Salem, O.
Union Mfg. Co., 96 Chambers, N. Y. Union Mrg. Co., 96 Chamoers, N. I.
Raiis, Iron and Steel, Makers of.
Allentown Rolling Mill Co., Allentown, Pa.
Cambria Iron Co., Johnstown, Pa.
Carnegle Bros. & Co., Limited, Pittsburgh, Pa.
Cleveland Rolling Mill Co. Cleveland, Ohlo.
Godeffroy & Co., 43 New. N. Y.
Hernaneim L., 20 Nassau, N. Y.
Leavitt C. W., 161 Broadway, N. Y.
Anontour Iron & Steel Co., Danville, Pa.
Pittsburgh Bessemer Steel Co., Pittsburgh, Pa. Railway Supplies. Carpenter, Geo. B. & Co., Chicago, Ill Jesup F. W. & Co., et Liberty, N. Y. Retcaif, Faul & Co., Pittsburgh, Pa. . . Razors. Field Alfred & Co., 93 Chambers, N. Y. Rims. Musseiman, Samuel & Son..... Rivets.

Falls Rivet Co., Cuyahoga Falls, Ohio.

Gilmor Wm., of Wm., Baltimore, Md.

Grundy & Disosway, 105 Greenwich, N. Y.

Harrison C. F., Cuyahoga Falls, O.

Old Colony Rivet Co. Kingston, Mass.

Standard Rivet Co., 100 Leonard St., Cleveland, O.,

Townsend W. P. & Co. Pittsburgh, Pa. Roofing. Bodine Roofing Co., Cleveland, O., Garry Iron Roofing Co., Cleveland, O., Bound tooling Co., Cleveland, Carry Iron Hoofing Co., Cleveland, Co. New T., 30 John, N. Y.
Northrop A. & Co., Pittsburgh, Pa.
Sorvder, T. C. & Co., Canton, C. Roller Busbings. Livesey Mfg. Co., 33 South st., N. Y... Rolls, Chilled and Sand. Phonix Chilled Roll Works, Allentown, Pa..... Rules, Manufacturers of Stanley Rule and Level Co., 29 Chambers, N. Y..... Bad Irons. Chalfant Mfg. Co., Atglen, Pa. ... Enterprise Mfg. Co., Philadelphia Sash Cords. Silver Lake Co., 47 Warren, N. Y.... Shwer Leke Co., 47 Waiter, N. Y.

Sawa, Makers of.
American Saw Co., Trenton, N. J.
Barry, W. B., Indianapolis, Ind.
Boynton E. M., so Heskman, N. Y.
Diston Henry & Sons, Phila.
Harves W. Peace Co., Ld., Brooklyn, E. D., N. Y.,
Richardson Saw Works, Newark, N. J.
Wheeler, Madden & Ciemsen Mrs. Co., Middletown, N. Y.

Saw Hard. Wheeler, maduri & Constitution N. Y.
Saw Hand.
Snigar & Co., Buffalo, N. Y.
Saw Filing Machine, Band.
Saw Filing Machine, Band.
Philadelphia.
Saw Frames, Bakers of.
Boynton E. M. & Beekman, N. Y.
Disston H. & Sons, Philadelphia.
Saw Weta. Boynton E. M., 86 Beekman, N. Y. Disston H. & Sons, Philadelphia.

Saw Nets.
Boynton E. M., 86 Beckman, N. Y. Farr Asa, 64 College Place, N. Y. Scales, Manufacturers of.

Buffalo Scale Co., Buffalo, N. Y. Chatillon John & Sons, 91 Cliff. N. Y. Forsyth Scale Co., Youngstown, O. Olsen, Tinius & Co., Philadelphia.

Richle Bros., 9th above Master, Phila.

Scrapers.

Screw Drivers, (Improved) Makers of Disston Henry & Sons, Phila Scroll Saws. Seneca Mig. Co., Seneca Falls, N. Y..... Scythe Stones. rike A. F.. Pike Station. N. H.... Shafting. Makers of. Cresson Geo. V., Philadelphia, Ps..... Poole & Hunt. Seliers Wm. & Co., Phila. and 7 Liberty st., N Shears and Scissors.
J. Wiss & Sons, Newark, N. J.... Shears (Sheep).
Field Alfred & Co., 93 Chambers, N. 7.... Ship Chandlery. Creed Geo. H., 103 Reads, N. T.... Snovels, Spades and Scoops,
Old Colony Iron Co., 211 Pearl, N. Y.,
Payn, Pettebone & Son, Wyoming, Pa. Shutters, Steel and Wood. Clark, Bunnett & Co., 162 W. 27th, N. Y. Skates. W. A. Sutton, 522 W. 20th, N. Y..... Share Kevs and Straps.
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44 Spiegeleisen.
Hernsheim L. 20 Nassau, N. Y.
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Cary & Moen, 24 W. soth, N. Y.

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Johnstown, Pa. 3835

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Jones B. M. & Co., 11 and 13 Oliver, Boston, Mass Hubbard Chas., & Cliff, N. Y.
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Metzner W. C., Chicago, Ill... Stove Trucks.
Tucker Alarm Till Co., Indianapolis, Ind.... Tapa and Dies.
Carpenter J. M., Pawtucket, R. I.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wiley & Russell affs. Co., Greenfield, Mass... Testing Machines.
Olsen Tinius & Co., Philadelphia, Pa
Richle Bros., Philadelphia..... Tools. Steam and Gas Fitters.
Ashcroft Mfg. Co.. 111 Liberty, N. T.
Eaton, Cole & Burnham Co., 58 John, Eaton, Cole & Bushaman
Torches.

American Vapor Stove Co., Cleveland, Ohio.
Aurora Vapor Stove Co., Cleveland, Ohio.
Billings, G. W., Cleveland, Ohio
Daugler Vapor Stove and Refluing Co., Cleveland, Ohio. Hull Vapor Stove Co., Cleveland, Ohio. Loomis T. R., Cazenovia, N. V Hull Vapor Stove Co., Cleveland, Ohio.
Loomis T. R., Cazenovia, N. Y.

Trucks, Manufacturers of.
Penfield Block Co., Lockport, N. Y.

Try Squares, Heveis, &c., Makers of.
Diston Henry & Sons, Phila.

Tube Expanders.
Dudgeon Richard, 2a Columbia, N. Y.

Tubes, Seumiers.
Charles H. Beslev & Co., Chicago, Ill...

Tubes, Telescope.
Tubes, Telescope.
Tubes, Telescope.
Tubes, Telescope.
Tubing, Makers of.
Morchant & Co., 155 Arch, Phila.

Turning (Wood),
Ripley Mig. Co., Unionville, Conn.

Tuyere Irons, &c.
Morgan A. W. & Co., Indianapolis, Ind.

Twist Drills, Makers of.
Morse Twist Drill & Mach. Co., N. Bedford, Mass,
Valves, Gas., Water and Steams,
Ludiow valve Mig. Co., Troy, S. Y.

The Eddy Valve Co., Waterford, N. Y.

Howell Chas, H. & Co., Philadelphia,
Roseaberg, D. & Sons, 740 E. 14th St., N. Y.
Vises.
Boker Hermann & Co., 10 Duane, N. Y. Stephens Patent Vise, 4i Dey, N. Y.

Stephens Patent Vise, 4i Dey, N. Y.

Bowler & Co., Cleveland, O.

Whitner A. & Sons, Philadelphia.

Whetstones.

Pike A. F. Pike Station, N. H.

White Lend.

Brooklyn White Lead Co., 182 Front, N. Y.

Colgate Kobt, & Co., 287 Fearl, N. Y.

Jewett John & Sons, 183 Front, N. Y.

Jewett John & Sons, 183 Front, N. Y.

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John A. Roebling's Sons Co., 17 Liberty, N. Y.
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John A. Roebling's Sons Co., 17 Liberty, N. Y.
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John A. Roebling's Sons Co., 17 Liberty, N. Y.
John A. Roebling's Sons Co., 17 Liberty, N. Y.
John A. Roebling's Sons Co., 17 Liberty, N. Y. Chatilion John & Sons, of Cliff, N. Y

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Kilbourne & Jacobs Mfg. Co., Columbus, O. 35

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Billerbeck J., 17th and Venango Sts., Philadelphia : Billerbeck J., 17th and Venango Sts., Philadelphia : Bruce Geo. W., 1 Platt, N. Y. 35

Bruce Geo. W., 1 Platt, N. Y. 35

Miles F. S., 25 quarry, Phila. 25

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Screws Cases. 37

American Bolt and Screw Case Co., Dayton, O. 35

American Bolt and Screw Case Co., Dayton, O. 35

Wrinsers. 37

Wrinsers. 38

Wrinsers. 38

Wrinsers. 30

W

NEW YORK WHOLESALE PRICES, October II, 1882.

. 40° (6 45° . 44° (6 45° . 80° (6 9° . 70° (8 75° . 64° . 40° . 6

Mineral Wool, ordinary.

Mineral Wool, extra.

Asphaltum Cortinary.

Aineral Weot.
Asphaltum Cuban...
Asphaltum Egyptian.
Bensine...

METALS.	All Mandrel Drawn Tubes under % in. 25 cents per pound advance.
IRON.—DUTY. Bars, 1 to 136C. ♥ ™; Sheet, Bai Houp and Scroll, 14 to 136C. ♥ №; provided, that no of the above from shall pay a less rate of duty to 25 per cent. Pig. 87 ♥ ton; Polished Sheet, 3C. ♥ ? Wrought Scrap, 86 ♥ ton; Cast Scrap, 86 ♥ ton. Ba road. 70C. ♥ 100 №. Boiler and Plate, 136C. ♥ №	Plain
FORG. 70C. # 100 B. Doller and Flate, 1960. # B. American I ron. Foundry. No. 1x.	9 Per cent L. 12 Per cent L. 15 Per cent L.
Foundry, No. 2x # ton 44.00 @ 24. Gray Forke # ton 22.00 Scotch Iron	50 16 Per cent
Eginton	Is Per cent. 22 Per cent. 23 Per cent. 25 Per cent. 25 Per cent. 26 Per cent. 26 Per cent. 26 Per cent. 27 Per cent. 27 Per cent. 28 Per cent. 29 Per cent. 20
Gartsherrie Pton Langian Pton English Fron	Railway Bars, 14c & m. Railway Bars, in part Stee 1c & m. Provided, that Metal cemented, castor mac from Iron by the Bessemer or pneumatic process, a whetever form or description, shell believed.
English Iron. Redcar No. 3	American Cast Steel. For American Steel see quotations under heading of Pittsburgh.
Tron.	English Steel. Best Cast.
Scrap. Wrought Scrap. to arrive	Round Machinery Cast
Bar from from Store.	German Steel, Best W 15 13c 2d quality 97 15 0c 2d quality 97 15 0c
\(\frac{1}{2} \text{ to 1 in. round and square} \) \(\frac{1}{2} \text{ to 1 in. round and square} \) \(\frac{1}{2} \text{ to 6 in. x} \frac{3}{2} \text{ to 1 in.} \) \(\frac{1}{2} \text{ to 2 in. round and square} \) \(\frac{1}{2} \text{ to 2 in. round and square} \)	ad quality
Renned iron: % to 2 in. round and square	T.E.A.D -Dury : Place 2 2 100 th Old Lead 1160 20 11
Norway Nail Rods	Pipe and Sheet, =36 \(\psi \) B.
Nos. 10 to 20. American American American S D 4 C C C C C C C C C C C C C C C C C C	Sheet
25 to 26.	N. P. U
Norway Nail Rods	N. P. U
Galvanized, 25 to 20. W 50 9980 6 C Galvanized, 27 % 50 1040 8 860 Galvanized, 28 % 50 11 C 9 C Catent Planished A 8 5 1046 R 0460	Block and Figs free. Banca, subject to duty of reper cent. Banca. \$\P\$ 18 48 @ 200 Straits. \$\P\$ 15 25 \ @ 200 English \$\P\$ 185 \ @ 500
Russia	English 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
per 4c & m; Manufactured (including all articles of	I C 14X20 PrimeCharcoal \$6.25 @ 6.79
which oppers is composed to the terminal of the propers of the pro	I X 10X14 Prime Charcoal 8.25 I X 14X20 Prime Charcoal 8.25 I X 12X12 Prime Charcoal 8.56
ft., and over # b	1 X 12X12, Prime Charcoal 8.5c D U 125 X 17, Frime Charcoal 6.00 € 6.2c D X 125 X 17, Frime Charcoal 8.2c For each additional X add. 2.0c
Braziers' Copper, Lighter than 10 oz. \$\psi\$ sq. ft. \$\psi\$ \$\pm 36c \text{Circles less than \$\pm 4\$ in. in diameter. \$\pm 3 \pm 36c \text{Circles \$\pm 4\$ in. diameter. \$\pm 5 \pm 50c \text{Circles \$\pm 4\$ in. diameter and over. \$\pm 5 \pm 50c \text{Circles \$\pm 4\$ in. }\pm 5 \pm 50c \text{Circles \$\pm 4\$ in. }\pm 50c Cir	C 10x14 Bost. Ordinary C 14x50 \$4.77 \$4.26 5.50 C 12x13
Segment and Pattern Sheets	1 C 12X12 6.00 5.50 € 5.75 Prime Char. 2d Qual. Coke.
Copper Bottoms. W b 3cc Copper Bottoms. W b 3 i 68 3cc No Copper is Sheathing except 14x40 inches, and not	I C 14X20 85.50 @ 5.75 5.37½ @ 5.50 5.27.26 5.37½ C 1 X 14X20 7.50 7.50 1 C 20X28 11.50 @ 11.75 11.00 @ 11.25 1c.75@ 11.00
TINNING.	I C 20X20 10.50 I C 14X20 M. F. Brand
heets 14 x 48	
o'NEILS PATENT FLANISHED COFFER.—Net. 14x46. and 16 oz. and heavier. \$\pi\$ 370 By the case. \$\pi\$ 360 oz. and lighter \$\pi\$ 400 \$\frac{1}{2}\$ \$\pi\$ 390 Boiler Sizes.	# 100 B. American cash
In., 14x52. 8 in., 14x55. 9 in., 14x60. and 16 oz. and heavier., W h 39c By the case. W h 38c (And all sizes not over zo in. wide.)	2746 # 55. Sheet, Cask
24x45&30x50	Paper Stock, &c.
Brown & Sharp's Gauge the Standard for Metals. Old English Gauge the Standard for Wire, BRASS MANUFACTURERS' FRICE LIST.—dis. 30 %.	(Dealers' Selling Prices.) White Shirt Cuttings No. 1
Cash prices for Roll and Sheet Brass. For less quanties than 100 hs add 3c. W h.	White Shirt Cuttings, No. 2 5 6 54 Mill Assorted Whites 54 6 55 Unbleached Muslins 64 6 6
All Nos. not thinner than to No. 28, wider than 2 in. not wider than 14 in	City Whites, No. 1
in. not wider than 14 in. 30c All Noa to No. 28, inclusive, and widths over 14 to 20 in. inclusive. All Noa to No. 28, inclusive and widths over 20 to 30 in. inclusive. 56c. * B advance on each No. above Nos. 28 to 38, in-	No. 2 Writes 22 6 3 25 Cotton Canvas 42 6 42 6 42 6 42 6 42 6 42 6 42 6 6 42 6 6 6 6
m., inclusive.	Seconds. City No. 1 156 68 176 1
All Brass thinner than No. 38 is Platers' Brass, at 53c Sheets 24x48, and all sheets cut to particular sizes and lengths under 30 in. in width wider than 2 in 37c Printers' Rules	Manila Rope, 346 @ 336 Manila Rope, Tarred. 514 @ 214 Gunny Bagging. No. 1. 214 @ 244 Gunny Bagging. No. 2. 244 @ 244 Gunny Bagging. No. 2. 244 @ 244 Gunny Bagging. No. 2. 244 Gunny Bagging.
and lengths under so is. In width wider than 2 in. 37c Printers' Rules	Kentucky Bagging 456 454 Burlap Bagging No. 1 256 254 Tar Shakings 2 6 254
20 30, 4 .490 30 40, 4 .550	Kentucky Engeling. 45 6 48 Burlap Bagging, No. 1 29 6 29 4 Tar Shakings. 2 6 24 Hemp Twine Stock. 49 6 48 Hard White Shavings, No. 1 3 6 34 White Shavings, No. 2, soft 6 34
LOW BRASS. c ♥ B more than High Brass. Gilding Metal, Sc ♥ B more than High Brass.	White Shavings, No. 2, soft. 6 334 Mixed Shavings, part white. 256 3 Ledger and Writing. 356 36
c w more than right press. Gilding Metal, &c w more than High Brass. In Bars. In Bars. Sawed. For surring. 51c For surring.	
Metal, in width 1 in. to 1/4 in. to No. 28, inclusive, 10 7 m	Solid Stock 2% 3 Book Stock, No. 1, light 14 6 1½ Old Newspapers 1½ Pure Manilas 24 6 24
Metal, in width 2 in. to 1 in. thinner than No. 28, 20 W 75	Solid Stock 28 3
	Pure Manilas 2½ 6 2½ Bogus Manilas and Hardwares 1 1½ Commons per 100 lbs. 70 80 Binders' Board Cuttings 1½ 1½ Straw Board Cuttings 1 1½
Metal in width 1/4 in. to 1/4, inclusive, not thinner than	Paints, Oils, &c.
Metal in width 1/4 in. to 1/4, inclusive, not thinner than	Paints, Oils, &c.
Metal in width 1/4 in. to 1/4, inclusive, not thinner than	Paints, Oils, &c.
Metal in width 1/4 in. to 1/4, inclusive, not thinner than	Paints, Oils, &c.
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Metal in width 1/4 in. to 1/4, inclusive, not thinner than	Paints, Oils, &c.
Metal in width 1/4 in. to 1/4, inclusive, not thinner than	Paints, Oils, &c.
Metal. in width ½ in. to ½, inclusive, not thinner than Metal. in width ⅓ in. to ¼ thinner than No. 28, 5c № 5 advance. Metal. in width ⅓ in. in b ¼ thinner than No. 28, 5c № 5 advance. Metal. ⅓ in. in width and leas. 1cc ₽ 55 advance. Metal. ⅙ in. in width and leas. 1cc ₽ 55 advance. Metal. ⅙ in. in width and leas. 1cc ₽ 55 advance. Market Metal. Wire Metal. Wire 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Paints, Oils, &c. Paints. Paints. Black Lamp, Coach Painters. Black Lamp, Ordinary Black Lamp, Ordinary Black Lamp, Ordinary Black Paints Black Paints Black Paints Black Paint, in oil Blue Prussian, fair to best Blue Prussian, fair to best Blue Prussian, fair to best, in oil. Blue Prussian, in oil. Blue Pr
and the which ½ in. to ½, inclusive, not thinner than Set al. which ½ in. to ¼ thinner than No. 28, 5c № m advance. Metal. in which ⅓ in. to ¼ thinner than No. 28, 5c № m advance. Metal. ⅓ in. in which and leas. 1cc ₽ ₺ advance. Metal. ⅙ in. in which and leas. 1cc ₽ ₺ advance. Metal. ⅙ in. in which and leas. 1cc ₽ ₺ advance. Any of the above which cut to particular lengths, add 7cc ₽ ₺. German Silver Market Metal. Wire 4 per cent., 12 inch to No. 26. 10	Paints, Oils, &c. Paints. Pa
and the which ½ in. to ½, inclusive, not thinner than Set al. which ½ in. to ¼ thinner than No. 28, 5c № m advance. Metal. in which ⅓ in. to ¼ thinner than No. 28, 5c № m advance. Metal. ⅓ in. in which and leas. 1cc ₽ ₺ advance. Metal. ⅙ in. in which and leas. 1cc ₽ ₺ advance. Metal. ⅙ in. in which and leas. 1cc ₽ ₺ advance. Any of the above which cut to particular lengths, add 7cc ₽ ₺. German Silver Market Metal. Wire 4 per cent., 12 inch to No. 26. 10	Paints, Oils, &c. Paints. Pa
Metal. in width ½ in. to ½, inclusive, not thinner than St. a. № m be made. Metal. in width ½ in. to ½ thinner than No. 28, 50 № m advance. Metal. is width ⅓ in. to ¼ thinner than No. 28, 50 № m advance. Metal. ¼ in. in width and leas. 100 ₽ m advance. Any of the above widths cut to particular lengths, add 70 № m. GERMAN SILVER MARKET METAL AND WIRE. Market Metal. Wire 4 per cent., 12 inch to No. 26	Paints, Oils, &c. Paints. Pa
Metal in width \(\frac{1}{2} \) in to \(\frac{1}{2} \) in hinter than No. 28, \(\frac{1}{2} \) is advance. Metal in width \(\frac{1}{2} \) in to \(\frac{1}{2} \) thinner than No. 28, \(\frac{1}{2} \) is advance. Metal in width \(\frac{1}{2} \) in to \(\frac{1}{2} \) thinner than No. 28, \(\frac{1}{2} \) is advance. Metal in width \(\frac{1}{2} \) in to \(\frac{1}{2} \) thinner than No. 28, \(\frac{1}{2} \) is advance. Metal \(\frac{1}{2} \) in in width and leas, \(\trac{1}{2} \) is advance. Any of the above widths cut to particular lengths, add To \(\frac{1}{2} \) in \(Paints, Oils, &c. Paints. Black Lamp, Coach Painters. Black Lamp, Ordinary Black Paint, in Oil Blue Prusslan, fair to best. Black Paint, in Oil Blue Prusslan, fair to best. Blue Prusslan, fair to best, in Oil. \$45 6 50 Blue Chinese dry. \$700 Blue Ultramarline. B6 300 Brown, Spanlah. B140 Brown, Van Dy'ke. B156 300 Brown, Spanlah. B140 Brown, Van Dy'ke. B156 300 Brown, Spanlah. B156 300 Brown, Van Dy'ke. B156 300 Brown, B156 300 B156 300 B157 30
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26, four cents dvance on List for each

Number, -pove No. 20, special rates. (ain, 1 inch. Jain, 10 inch. (ain, 15 inch. (ain, 15 inch.) (ain) Sinchel Drawn Tubes. • cents advance on List

Fines.
Finglish, Scotch and Extra Patterns Fancy Tubing
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dd two cents 16 cent for each additional cutting

gsawed or Cut 2 to 4 feet long, 2 cents ad-

landrel Drawn Tubes under ¾ in. 25 cents per und advance. ZINC TUBING—dis. 25 %. V. V. V. V. V. V. V. V. V.	Pitch	### - Strain - Strai	of 50 fe 7, 1882.	\$2.280 \$3.10 \$3.80 50	30 31 31 34 34 35 32 32 32 32 32 32 33 34 34 31 32 32 32 33 34 34 34 34 34 34 34 34 34
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	SIZES.	ist.	ad.	301.	4th
1;B. 2cc: C. 14. DUTY: Pittes, Sheets Tagger and Terne, 1.re Electro-galvanized Plates, 2c ♥ m; Manufac- tof, not enumerated, 35 per cent. ad val. Bars, c and Pigs free. Banca, subject to duty of re ent. ● m 25 € 62 20c TEN PLATES.*	6 x 8 to 10 x 15, 11 x 14 to 16 x 24, 13 x 22 to 20 x 25, 15 x 36 to 24 x 35, 25 x 36 to 24 x 35, 25 x 36 to 36 x 44, 25 x 46 to 30 x 46, 30 x 46 to 30 x 50, 30 x 60 to 34 x 65, 31 x 66 to 34 x 66, 32 x 66 to 34 x 66, 33 x 66 to 34 x 66,	15.75 20.00 22.00 24.00 25.00 37.00 30.00 31.50 33.00	18,50 20,00 22,50 23,50 25,25 28,00 29,00 31,50	\$11.75 14.00 17.00 17.75 19.25 20.00 22.00 24.00 26.25 28.50 32.00	\$11.00
4 PrimeCharcoal \$6.25 @ 6.75	Sizes above-\$15 per box e	xtra fo	or every	sinch	168.
12 Prime Charcoal 6.75	An additional to per cent	will	be cha	rged fo	orall
Prime Charcoal 8.25	inches in length, and not ma	king n	ore the	an 81 u	nited
(x17, Prime Charcoal	Sizes above—\$15 per box e An additional 10 per cent Glass more than 40 inches inches in length, and not ma fnches will be charged in the Discount	94 uni	ted inc	hes bra	cket.
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Best. Ordinary. \$5.75 \$5.25 @ 5.50	RUBBER &	LEA	THEF	}	
2 6.00 6.50 6.75		-			

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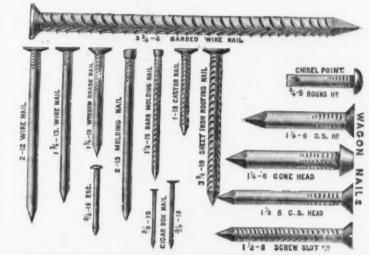
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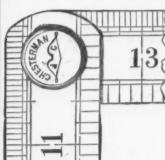
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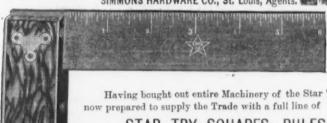
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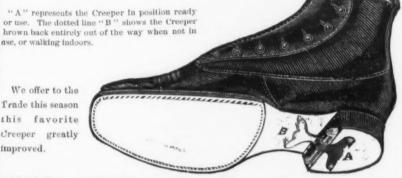
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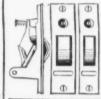
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HARDWARE.	
A nvils. Fagle Anvils American. Fagle Anvils American. Fagle Anvils American. Fagle Anvils American. Fagle Anvils Anvils Anvil Vise and Drill. Millers Falls Co., \$28.00. Chency Anvil and Vise. Anvil Vise and Bits.	is 20 % (0 110 @ 9% (0 . 10% (
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Anvil Vise and Drill. Millers Falls Co., \$28.00 dis 2 Augers and Bits. Conn. Valley Mrg. Co. Douglass Mrg. Co. Douglass Mrg. Co. O E. Jennings & Co. Humphreysville Mrg. Co.) dis 408 Ves. Secher (French, Swift & Co. from it beecher (French, Sw	358 X 140 X 1125 X 110 X 10 X
Morse's Bi. Stock Drill. dis L'Hommedieu's Ship Augers dis Awi Haite. Sewing, Brass Ferrule. \$3.50 \(\text{F} \) gross-dis 408 Parsnt Sewing, Short. \$1 00 \(\text{F} \) doz.—dis 408 Parent Sewing, Long. \$1.20 \(\text{F} \) doz.— Parent Peg, Plain Top. \$1.20 \(\text{F} \) gross-dis 408 Parent Peg, Leather Top. \$12.00 \(\text{F} \) gross-dis 408 Parent Peg, Leather Top. \$12.00 \(\text{F} \) gross-dis 408	25 % 15 % 10 % 10 %
Patent Peg, Leather Top . \$12.00 \$\psi\$ gross-dis 40& Awls. Brad Sets. C.c. Awls. Sewing. Common . \$\psi\$ gross \$\psi_1.70-\dis 25& Awls. Sewing. Common . \$\psi\$ gross \$\psi_1.40-\dis 25& Awls. Shouldered Peg . \$\psi\$ gross \$\psi_1.40-\dis 25& Awls. Shouldered Peg . \$\psi\$ gross \$\psi_2.40-\dis 25& Awls. Shouldered Peg . \$\psi\$ gross \$\psi_3.70-\dis 25& Awls. Handled Strad . \$\psi_7.00 \psi\$ gross-dis 25& Awls. Handled Strad . \$\psi_7.00 \psi\$ gross-dis 25& Awls. Handled Strad . \$\psi_7.00 \psi\$ gross-dis 25& Awls. Socket Scratch . \$\psi_1.00 \psi\$ gross-dis 25& Awls. Socket Scratch . \$\psi_1.00 \psi\$ gross-dis 25& Brad Sets. Alken's . \$\psi_1.00 \psi\$ gross-dis 25& Brad Sets. Alken's . \$\psi_1.00 \psi\$ gross-dis 25& Brad Sets. Stanley's Excelsior, No. 1, \$\psi_0.50\$. dis 30\$ grad Sets, Stanley's Excelsior, No. 2, \$\psi_7.80\$. dis 30\$ ared Sets. Stan ey's Excelsior, No. 3, \$\psi_7.80\$. dis 30\$	IOX IOX IOX IOX IOX IOX IOX IOX IOX IOX
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Balonces. Spring Balances. Bells. Bells. Band, Light Brass. dis 6cc. Hand, Extra Heavy. dis Hand. Mitte Metal. dis 6cc. Hand, Oliber (Cone's Patent). Gong, Abbe's. dis 2cc. Gong, Yankee. dis 2cc. Gong, Barton's. Crank, Taylor's. dis 2cc. Crank, Cone's. Crank, Cone's. Crank, Cone's. dis 2cc. Lever, Taylor's Japanned or Plated Lever, Reading dis 2cc. Lever, Reading dis 2cc. Lever, Reading dis 2cc. Call. Cow, Common Wrought. dis 2cc. Cow, Western, Sargant's new list. dis 2cc. Cow, Western, Sargant's new list. dis 2cc. Cow, Western, Sargant's new list. dis 2cc. Cow, Cow, Western, Sargant's new list. dis 2cc. Cow, Cow, Western, Sargant's new list. Cow, Cow, Wentucky "Star". dis 2cc. Cow, Cow, Contucky "Star". dis 2cc. Cow, Cow, Contucky "Argent's new list. dis 2cc. Cow, Cow, Contucky "Argent's new list. dis 2cc. Cow, Cow, Cor, 2cc. dis 2cc. Cow, Cow, Cor, 2cc. dis 2cc. Cow, 2cc. dis 2cc. Cow, 2cc. dis 2cc.	MAN AND AND AND AND AND AND AND AND AND A
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Blind Fasteners. Mackreii's \$\psi\$ doz pairs. \$1.00 dis to Van Sand's *Crew Pattern \$\psi\$, \$6.50; \$\psi\$ gro. n Van Sand's *Crew Pattern \$\psi\$, \$6.50; \$\psi\$ gro. n Vasiburn's Old Fattern \$\psi\$, \$6.50; \$\psi\$ gro. n Sand's Out Fattern \$\psi\$ gr	et Soiet Soiet Soiet Taiet Taiet Ta
Hicks, Penfield Block Co., L. R. and I. Strap'd. Penfield Block Co., W. I. C. bushed. Penfield Block Co., W. I. all steel rollir. Penfield Block Co., L. & I Sheaves. Salley Rule & Level Co. S. d. d. d. sockets.	Iron Iron Iron Iron Iron Iron Iron
Holes. Cast I not Barrel Shutter, &c	No Raise Glove Pla
Wrought Sank Flush, Stanley's dis 40 ct. Wrought Sank Flush, Com'n Stanley's dis 40 ct. Carriage and Tire, Common dis 40 ct. Carriage and Tire, Philadelphia, new list dis 50 carriage and Tire, Philadelphia Pattern dis 70 ct. Union Carriage dis 50 ct. R. B. & W. Carriage cold list) dis 65 ct. Tire, Am. Screw (0.5, Phila dis 57 ct. Tire, "Bay State" dis 80 ct. Tire, R. B. & W. new list dis 80 ct. Stove—American Screw Co.'s dis 40 so 70 ct. Stove—American Screw Co.'s dis 40 so 70 ct. Stove, R. & E. Mfg. Co dis 40 so 70 ct. Ow .	A Ale E Bos Will Seli Am Fre The Will Fre Will Per Per
Slow, R. B. & Co	Ben Ben Ben
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Blind Butts, Sargent's, No. 12. dis 70& Blind Butts, Reading's Gravity dis 65%& Blind Butts, Reading's Gravity dis 65%& Clark's Improved Shutter Hinge, Nos. 0, 1 1%, 2 1%, 5. How Pins. Humason, Beckley & Co.'s. dis 60% Sargent & Co.'s. dis 60% Butcher's Cleavers. Humason & Beckley Mfg. Co. dis 2 8 Bradley's. dis 68% Beatty's. dis 2 6% dis 2 8% dis 2 6% dis 2 8%	5% Mo
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Sabin's Boss. No. 1, \$\vec{4}\ doz. \$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	30 % C
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Whitney's Hand Drill, Plain, \$11.00 Adjustable, \$12.00. dis 2 Wilson's Drill Stocks. dis 1 Automatic Boring Tools. each, \$2.25, dis 2	5 % Si
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916	The state of	Oilers Zinc and Tin Brass and Copper	dis 60 %
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1	6 7	Pinking Irons Plaiting Machines. Magic.	
	1	Crown Plaiting Machines 6 in \$6.00; to i	In., \$8.00 each.
a value value	1	Pinnes and Piane Ire Bench, First Quality Bench, Second Quanty	0118. dis 20 %
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9	I	Defiance Adjustable Laftin Mfg. Co	
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N	E	Iron". Plane Iron, Ohio Tool Co Plane Irons, Sandusky Tool	i Codis so)
31 97 97	E	Pliers and Nippers. Sutton's Patent	or Cutting Nippers, No. 2,
7 9 9 9 8	E	4 in., \$13.50; No. 4. 7 in., \$2 Rumason & Beckley Mfg. C	## gross #4.co, net ## gross #5.c5, net ## gross #6.c5, net dis 45z10 \$ dis 45z10 \$ dis 45z10 \$ dis 45z10 \$ dis 40 \$ d
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October 12, 1882.	-
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Common # b 100 g iso r Patent # b 100 g iso r Silver Lake, White Cotton # b 500, dis r Silver Lake, D rab Cotton # b 500, dis r Silver Lake, D rab Cotton # b 500, dis r Raw Hide, # foot, id in, 50.; 5-16 in, 70.; % in, 100 dis r	net os os os
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Hed, Pollshed and Varnished.	5 % S & S & S & S & S & S & S & S & S & S
Saw Rods. **Naw Nets. **Boynton's Patent X Cut, per dos, \$12.00; Hand Saw per dos, \$10.00. Stilman's Genuine. **V dos \$3, so and \$5, so dis 7 Stilman's Genuine. **V dos \$3, so and \$5, so dis 7 Stilman's mitation. **V dos \$3, so and \$5, so dis 7 Stilman's mitation. **V dos \$3, so and \$5, so dis 7 Stilman's mitation. **V dos \$3, so dis 7 Stilman's Mitation. **V dos \$3, so dis 7 Stilman's Mitation. **Nash's. **Hammer, Hotohkiss. **Hammer, Hotohkiss.	05550888888
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Chattilon's Grocers' dis a Chattilon's Euroka. dis 2 Chattilon's Euroka. dis 2 Family Universal. dis 5 Family Favorite dis 3 Family Fauribul's dis 3 Scale Beams. List of January 12, 1882. dis 336£1	
Adjuntable Box Scraper (S. R. & L. Co.), \$6.50, dis 26%. Box, 1 Handle.	
Porter's Pat. Window and Door Frame dis 30 Screw Drivers. Douglas Mig. Co	10%
Disston" Patent Excelsion. dis a Buck Bros . dis a Buck Bros . dis a Stanley Rule & Level Co.'s, Varnished Hdis. dis cox Stanley Rule & Level Co.'s, Black Handies dis sox Stanley Rule & Level Co.'s, Black Handies dis sox Sargent & Co.'s. dis sox: Gay's Double Action Ratches & dos, 4in., \$0.00; 5 in., \$10.00; 6 in., \$12.00—dis 3 Mailett & Co.'s Double Action Clutch & dos, 4in., \$1.00; 5 in., \$2.00; 6 in., \$0.00—dis 3 Cowles Hdw. Co., No. i Extra. dis sox Cowles Hdw. Co., No. i. (dis cox Cowles Hdw. Co., No. 1. (dis cox Cowles Hdw. Co., No. 1. (dis cox Clark's Patent. dis sox Clark's Patent.	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
Flat H'd Iron. New list April 27, 1888. dis- fround Head Iron. New list April 27, 1888. dis- Flat Head Brass. New list April 27, 1881. dis- Round Head Brass. New list April 27, 1881. dis- Brass and list of Plain Screws. dis- depath Agree Capping and dis- topath Agree (Iron Screws). dis- depath Agree (Iron Screws). dis-	5 % S & S & S & S & S & S & S & S & S & S
Coach, Common or Lag. dis a Machine, Plat Haad, 1703 dis 1 Machine, Round Head, 1703 dis 1 Machine, Round Head, 1703 dis 2 Machine, Round Head, 1703 dis 358 Bench, Wood, Bickoly and Gaster dis 208 d	10 %
Jack (Wilson's). Screw Window Balanc'es. R. H. Hugunin's. No. 1, \$2.10; No. 2, \$1.75; No. \$1.50 Screw H. Hugunin's. No. 1, \$2.10; No. 2, \$1.75; No. \$1.50 Screel Saws. dis	ec €
Shears and Scissors. dis American (Cast) Iron. see Pruning Hooks and Shos Pruning Hooks Ho	60 % 60 %
Mass. Cullery Co. 8t. Finances Sheaves, M. W. & Co. list. dis 48 Eliding Door, R. & E. List. dis 60x 108 Eliding Door, R. & E. List. dis 60x 108 Eliding Door, Fatens Roller, Hatfield's dis 60x 108 Eliding Door, Fatens Elist. dis 60x 108 Eliding Door, Moore's Anti-Friction. dis 60x 108 Eliding Door, Moore's Anti-Friction. dis 60x 108 Eliding Shutter, R. & E. list. dis 60x 108 Eliding Shutter, Eagent's list. dis 60x	t2 % t3 % t3 % t3 %
Shovels and Spades. Ames, New list, July 1, 1881 dis 402 Griffiths dis 402 Gld Colony dis 403 Gld Spades dis 402 Gld Colony dis 403	15 %

	1	
1	Shovels and Tongs. Iron and Brass Head, R. & E. list	N
	Polished Steel, new list	
	Slates. Square Frames, by case	-
	Spoke Shaves.	1
	Spoke Trimmore	-
	Bonney's .	1
	Species Second	
	Britannia dis 60. % Reed & Barton dis 40&10&5 % Hall & Elton dis 40&10&5 %	
	Cast Steel, Silver	
	Tin (Cowles Hdw. Co.)	
	"Lightning" Screw Platedis 10 %	A
	Stone	600
	Washita Stone, Slips	1
	Turkey Slips (Chase). \$1.7: \$1.50 dis 10 % Lake Superior (Chase). \$1.50 mb 16c, dis 10 % Lake Superior, Slips (Chase). \$1.50 mb 30c, dis 10 % Chase Superior, Slips (Chase). \$1.50 mb 30c, dis 10 % Chase Superior	u h E s
	Stove Polish. Joseph Dixon's	1
	Stave Folias	t
-	Dixon's Plumbago	
	Squares. Steel	1
	Winterbottom's Try and Mitredis 20&10 % Tacks, Brads, &c. New List, Sept. 1, 1882.	
	Tinned Swedes Tacks	1
	Swedes Hungarian Nalls. dis 40 % Gimp and Lace Tacks. dis 40 % Gimp and Lace Tacks, Tinned dis 40 %	1
	Trunk and Clout Nails	
	Tacks Frads, & Cc. Tacks Frads, & Cc	
	Chair Nails	8
	Tap Borers, Common and Ring Ites Tap Borers Common and Ring Ites Tapes Ites Tape	E C a
	American	EVE
	Tin Case	1
	Tobacco Cutters,	E
	Toe Calks. Winsted	F
	Machines (P. S. & W.)list add 20 S Tools (P. S. & W.)add 6 ≸	F
	Transom Litters. Wollensuk's Patent. Reiher's Patent, new list, Feb., 1882 dis 20% 10% 10 % Excelsior	F
	Traps.	F
	Game, Blake * Patent: dis 40 % Mouse, Wood, Choker	F
	Mouse, Catch-em-alive # doz \$2.50, dis 10 % Rat, "Decoy" # doz \$10.00, dis 10 % Trowels.	0
	Trowels. Lothrops' Hrick and Plastering. dis 25 8. Reed's Brick and Plastering. dis 15 8. Disston's Brick and Plastering. dis 25 7. Peace's Plastering. dis 25 7. Clement & Maynard's. dis 25 8. Rose's Brick. dis 15 8. Rose's Brick. dis 15 8. Rose's Brick. dis 25 8. Garden. dis 25 8.	CS
	Clement & Maynard's	6
	Gardendis 55 % Triers. Butter and Cheesedis 25 %	1
	Trucks (Warehouse, &c. Penfield Block Co.'s list, 1882dis 35 %	
	V Sets V Sets S	
	Solid, Peter Wright's 154c Solid, Wilkinson's 154c Solid, Wilkinson's 154c Parallel, Parker's dis 105 Parallel, Howard's dis 108 108 108 Parallel, Howard's dis 108 108 108 Parallel, Howard's dis 108 108 108 Parallel, Beach and Union dis 205 Parallel, Beach and Union dis 205 Parallel, Double Screw Leg dis 108 108 108 108 108 108 108 108 108 108	
	Parallel, Merrill's dis 15 g Parallel, Sargent's dis 553 c Parallel, Backus and Union dis 40 g Parallel, Gral Side	
-	Parallel, Double Screw Leg. dis 1542 to 5 Parallel, Prentiss. dis 25 % Parallel, Simpson's Adjustable. dis 25 %	
	Saw Filers. Bonney's # dos \$24.00, dis 20210 % Saw Filers, Stearn's	
	Saw Fuers, Relating	t
	Wasner Cutters. # dos \$12.50, dis 25 % Johnson # dos \$11.50, dis 35 % Penny # dos \$14.00, and \$15.00, dis 55 % Appleton # dos \$14.00, dis 55 % Appleton # dos \$15.00, dis 50 % Penny # dos \$15.00 % Penny # dos \$15.	i
	Washers.—See Nuts and Washers. Well Wheels	i
-		
-	Wire. Brass and Copper, Ust of June 10, 1880. dls 50 5 Bright and Annealed Nos. 0 6 18, dls 50 6 19 5 Bright and Annealed Nos. 2 6 5, dls 05 Bright and Annealed Nos. 27 6 50, dls 05 Bright and Annealed Nos. 27 6 50, dls 05 Coppered Nos. 0 6 18 dls 46 6 47 6 5 Gaivanised, Nos. 10 18 dls 46 47 67 75 Tinned, Nos. 10 18 dls 47 6 77 67	
-	Tinned Broom Wire, Nos. 18 to 25. dis 45 de 47 de 5	
	Tinned, NOR, 0 to 0 dis 47 g 47% 2 Cast Steel dis 45 g 47% 2 Cast Steel dis 45 g 47% 2 Cast Steel dis 45 g 48 g	
	Fence Staples	
6666	Galvanised Telegraph, No. # B bloke Fence Staples, Galvanised # B 5/4 @ 4/6 Fence Staples, Galvanised # B 5/4 @ 4/6 Stubs Steel Wire. \$7.60 7/6 5/4 Stubs Steel Wire. \$7.60 7/6 Galvanised Sarb Fence. # B 5/4 @ Galvanised Sarb Fence. # B 5/4 Galvanis	1
200	Judd's Picture Wire. dia 40 % Clothes Line Wire, Galvanized \$\pi\$ coli 25 \$\pi\$ 40 net Wire Cloth, green, drab and black \$\pi\$ 91. ft. 2\pi\$ net	1
t		
	W reaches, dis 4, 5 American Adjustable "S," list Jsm, 8800 dis 4, 5 Eaxter's Disgonal dis 200, 200 Coes' Genuine dis 200, 200 Coes' Hechnics' dis 400, 200, 200, 200, 200, 200, 200, 200,	1
たしている	Coes Pattern Wrought. dis 60 & 5; 5 Girard Standard dis coezo 5 Girard Agl. dis 60 & 5; 5 Bernis & Call's Patent Combination	A E
* * * * *	Coss' Pattern Wrought. dis 60 & 5; 8 Girard Standard dis coans & Girard Agi. dis 60 & 60 & 60 & 60 & 60 & 60 & 60 & 60	0 6
KKK	Alken Pocket (Bright). \$6.00, dis 50210 % The Favorite Pocket (Bright). \$4.002 \$8, dis 50 % Webster's Patent Combination dis 25 %	I
***	Wringers. No. 3\(\frac{1}{2}\) M. No. 3\(\frac{1}{2}\) M. No. 3\(\frac{1}{2}\) M. O. 4\(\frac{1}{2}\) M. O. 5\(\frac{1}{2}\) M. O. 5\(\frac{1}{2}\) M. O. 3\(\frac{1}{2}\) M. M. A. 3\(\frac{1}{2}\) M. M. A. 3\(\frac{1}{2}\) M. M. A. 3\(\frac{1}{2}\) M. M. A. 3\(\frac{1}{2}\) M.	
2444	Universal, XX, No. 1. 59.00 Universal, XX, No. 8. each 10.75 Universal, XX No. 12. each 20.25 Universal, XX No. 13. each 20.25 Universal, XX No. 14. each 20.25	
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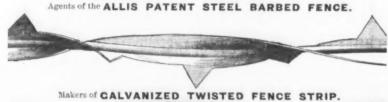
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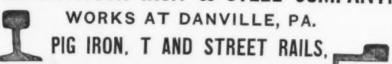
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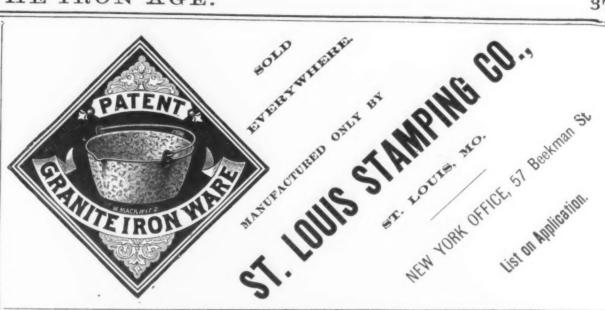
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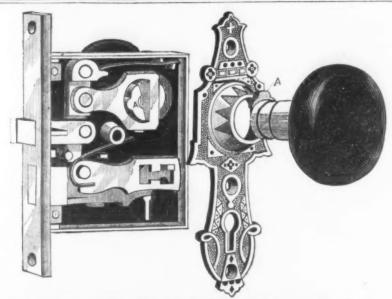
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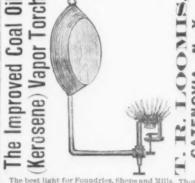
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Corrected Weekly by Lloyd, Supplee & Walton.)	Flat Head Iron. Brass. Round Head Brass. Iron
Terms, 30 days. For 60 or 90 days, interest added at 10% per cent. per annum. Anvils.	From From Passet From Passet From Passet German Silver Britannia, Boardman's Parker's Tinned Springs Torrev Gem No. 3 small Jap'd Old No. 10, per gross net Standard Springs, per doz. net Standard Spring By per doz. net Standard Spring House German Single No. 0, per doz. net Single No. 0, per doz. net Standard Spring House German Single No. 0, per doz. net Standard Spring House German Single No. 0, per doz. net Standard Spring House German Single No. 0, per doz. net Standard Spring House German Spring From Spring From Passet German Spring From Passet German Spring From Spring
Proce Wrights. * D 10%** Over 200 lbs 11c Trenton 10%	Britannia, Boardman's
Apple Parers. Alone Apple Parers. Alone Apple Parers. \$6.00 net	Springs.—Torrev. Gem No. 3 small Jap'd
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Double Bit Axes Det	Tacks. Shoe Nails—4-8, 7C.: 3½-8, 8c * b Double Pointed Tacks. Traps.
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Stearns' Pat. Hol. Augers, list \$48 % dozdis 25&10 Balances. Light and Commondis 15&10 %	Coos Genuine. " Mechanics' Wire.
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Upright, without Augers List 5.50 dis 45 dis 4	Papelage No. ald
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Cast Loose Joint, Narrow	rate of exchange on New York, or a cent. for cash, if remitted within 10
" Mayer's Loose Joint. dis 60%10 \$ " Mayer's Loose Joint. dis 60%10 \$	For fluctuations and
Wrought Loose Pin	on card rates see wee
" Loose Jointdis 45&to %	burgh Trade Report. The following are card rates.
	136 to 4 by 36 to 1 inch
Chains.—German Halter and Coll. list December 31. 1881. dis 442 09 % Galvanized Pump. de b obte no be	% % and % by % to % inch
Chains.—German Haiter and Coll. Hist December 31. 1881. Galvanized Pumb. Best Proof Coli Chain—English. Dest Proof Coli Cha	96. 94 and 96 by 96 to 96 inch. Rounds and Square I to 176. 2.0 98 to 91. 2 to 298. 2.70 96 to 91. 2 to 298. 3.00 98. 3 to 4 5.50 5.10 96 to 96. 2.00 96. 96 to 96. 2.00 97.
Chinela.—Socket Framing	4 to 4
Place discourse of the second	56 to 86 2 to 36
Plate	
Enterprise dis 25 % Cutlery.—Walden Pocket new list net	74 to 14 inch
Cutlery. — Walden Pocket new list net Penna Knife Co new list net Landers, Fra y & Clark, J. Russell & Co., Lamson & Goodnow Mig. Co. and Meriden Cutlery Co., Manu- fecturers' prices net.	78 to 178 by 5-10 to 38 mcn
Orawing Kulves. Hart Mfg. Co. s	56 " 13 and 14
Tinned	Heavy Bands.
Tinned	1 to 136 by 36 and 5-16 " 36 to 36 by 36 and 5-16 "
Files.	Light Bands.
Disston	1 to 136 by 36 to 3-16. 1 to 136 by Nos. 11 and 12.
Eagle—3\6\in. roll	% and 13-16 by Nos. 11 and 12
Files	36 to 6 by 16 and 4-16 frech. 11 to 136 by 16 and 4-16 frech. 12 to 136 by 16 and 4-16 frech. 13 to 136 by 16 and 4-16 46 and 3-19 frequency 46 and 3-19 frequency 46 and 3-19 frequency 47 to 16 by 16 to 3-16 48 to 6 by 16 to 3-16 49 to 6 by 16 to 3-16 40 to 136 by 16 to 3-16 40 to 136 by 16 to 3-16 40 and 13-16 40 and 14 to 3-16 40 and 14 to 3-16 40 and 15 to 3-16 40 and 16 to
Favorite com Fluter & Sad Iron @ doz \$10.50 net Hammers. Verkes & Plumb's. new Hat	linch by Nos. 11 and 12
Hammers. Yerkes & Plumb's. new list	13 to 2, Nos. 15, 14 and 18
Bandles. Dission Loop Handles Crosscut	134 to 2, No. 20. 134 to 2, No. 21. 134 to 2, No. 22.
Yerkes & Plumb, new listdis 30 %	15-10 1, and 136, Nos. 13.14 and 15 15-16, 1, and 136, Nos. 16, 17 and 18 1\$-16, 1, and 136, Nos.19 and 20
Hinges, Strap and T	15-16, 1, and 1½, No. 21 15-16, 1, and 1½, No. 22 36, No6, 13, 14 and 15
" Pol'ed & P't'd and Blued and Pointed. 31 28 2 25 24 23	76, Nos. 16, 17 and 18
Clinton 23 21 20 10 18 " Polished & Pointed 24 22 21 20 10	36. No. 22
Discount on Ausable, 20216225; Clinton, 20216223; Globe, 205 Hay and Straw Knives.	13-16, Nos. 19 and 20
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Lightning per doz, net \$18.00 Riectric 15.00 Wadsworth 16.50 Walton Straw Kuives 17.00 17.00	94, No. 19 and 20 36, No. 21 84, No. 22
Branford	11-10, Nos. 13, 14 and 15
Walton Straw Enives. 17.00 Locks and Endow. 18.00	11-16, No. 21. 11-16, No. 22.
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Excelsior. dis 30 %	9-16, No. 24 9-16, No. 22 9-16, No. 23
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Molasses Gates. Enterprise Mig Co 's Measuring Faucets dis 25 %	No. 21
Pennsylvania Pattera dis 30 Maiasses Gattee. S Measuring Foucets. dis 25 Secolum Gates dis 70-2 months of the Secolum distribution d	t-rog ner ih extra will be above
Ment Cutters.	1-roc per lb. extra will be charged lighter than the lightest indicated. 1-roc per lb. extra will be charged it to specified lengths.
Brass Liquor Cocks, new list Jan. 1 1886. dis 20 & Cork Lined " dis 70 & Meat Cutters. Dixon's	i-toe per lb. extră will be charged it ospecified lengths. Barrel Hoops. Barrel Hoops. 18 foz lm. cut to leng şt to 11 lbs. per set of 6 hoops. 18 toa diess than y lbs. per set of 6 leos than lbs. per set of 6 hoops. **Extract for Cutting to Length all P All Iron, including Tire. No. 9 and heavier. Plow Slabs.
### dis dis 45, 162 dis 184 dis 25 4 5	8 lbs. and less than 9 lbs. per set of 6 Less than lbs. per set of 6 hoops
Planes.—Sandusky Tool Co	All Iron, including Tire
Ohio & Alburn	No. q and heavier. Plow Sidos. "Wings. Sheet Iron. Common. No. 10 to 14. No. 15 to 17. She No. 16 to 21. No. 22 to 24. No. 25 & 25. No. 27 to 470
Plumbs and Levels. Stanley's Adjustable	No. 10 to 14 Common. Chi
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Lamont Combination Der lot. \$4.00 Imitation Emercon lgross lots \$4.20 Imitation Emercon pr doz. 2.00 Rures.—Stanley Boxwood dis 65% \$10 S	No. 27
Ruies.—Stanley Boxwood. dis 66% 210 % Stanley Ivory dis 55&10 %	not less than 2.100 extra. Wood's Fatent Planished
	Galvanized C. H. B.—(Charcoal Har Nos. 14 to 20
Lbs	Nos. 21 to 24
Squares. Steel and Iron	All shees, S.O., 18 and lighter, over not less than 2.1ce extra shree motions than 2.1ce extra shree motions that the strength of the shree motion
Disaton's Try Squares	2%, 3, 3% and nch
and Sharpened. Cilpper No. 10, Bronzed Blade, Boxed and Sharpened. Sharpened. Cilpper No. 5, Fainted Red, Boxed and sharpened.	15 inch. 15 by 1 in th, for Plow Handles
Sharpened Panel and Rip dis 2c % Disston's Circular dis 4c %	Ribs to the ward and the to
Disston's Circular dis 40 % Cross-Cut No. 2, Plain Tooth dis 40 % Patent Tooth dis 40 % Champion Tooth dis 40 % Boynton's Lightning Cross Cut, new Hist dis 40 % Lightning Buck Saws, cross bar dis 40 %	8 lbs. to the yard. 2.9c 20 lbs. to 12 2.5c 28 4 28 15 30 15
Boynton's Lightning Cross Cut, new listdis 40 % Lightning Buck Saws, cross bardis 40 % Showels and Snaden	Spice Joints for 1.86 is 38 sp
Oliver Ames & Sons, new list	216 and 3 by 36 " 12 and 16-11 216 by 5 16 " 8-lb. Rail Flat Rails.—Punched and Con
Shevels and Spades. Cliss Spades. Cliss Spades. Cliver Ames & Sons. new list. Cliss Spades. Cliver Ames & Sons. new list. Cliss Spades. Cliss	ble to 2 by \$6 to 56 inch. 150 by \$6 and 7-15 inch. 154 by \$6, 7-16 and \$6 inch.
Washita Extra.	Juniata Nail Rods
" Silps " 450 " Axe " 13c net	Drag Bars
Miss Potts Patent dis 35 %	Dropper Bars Cylinder and Landside Iron Plaw Beam Iron
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-	Screws. Flat Head Iron	
96	Flat Head Iron	1
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10	Tinned dis 50 % Springs Torrey dis 46%10 %	3-5-5
et	"No. 2 medium Jap'd. 275 dis 40 % "No. 2 medium Jap'd. 275 coil No. 10. per gross net 510.00 Warner Door Springs, per doz. net 1.75	O
50	Standard Spring Hinges— Single No. o, per doz. net 1.50 "No. 1." 1.50	01
25 75 et	Stocks and Oles. dis 10&t \$ Stove Polish.—Gom. \$ gross, \$1.50, dis 5 \$ Dixon. 6.00, dis 10\$	かんなってる
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0000	TERMS.—Note or acceptance at 60 days, with current rate of exchange on New York, or a discount of 2 per cent. for cash, if remitted within 10 days from date of	S
0 6 0 6	For fluctuations and discounts	B
00000	on card rates see weekly Pitts- burgh Trade Report.	E
2 % 2 % 2 %	The following are card rates. Flat Bar. 156 to 4 by % to 1 linch	SI
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101	The prices under Hoop Iron do not apply to Cotton	I
0%	lighter than the lightest indicated. 1-toc per lb, extra will be charged for each gauge 1-toc per lb, extra will be charged for cutting garage	26
5%	Bannal Hoose	30 30
565	to it lbs, per set of 6 hoops	30
10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	All fron, including Tire. 1.100 No. 9 and heavier 3.30 Plow Slabs 3.50 Wings Sheet Iron 3.50	in
200	No. 10 to 14 Common. Charcoal. Juniata.	
200	No. 18 to 17. 3.8c 5.40 6.8c No. 18 to 21. 4.1c 5.8c 7.1c No. 22 to 24. 4.3c 5.8c 7.3c	1
00.00	No. 25 & 26. 4 50 6.00 7.50 No. 27 7. 70 6.00 7.70 No. 28 6.0 15 and lighter, over 30 inches wide, not less than 2 100 extra	ì
200	Wood's Patent Planished Sheet, 1st quality (A)	
00 %	Nos. 14 to 25.	
00 W	Galvanized C. H. B.—Charcoal Hammored Blooms. Nos. 14 to 25. 12C No. 7. 15C No. 7. 15C No. 7. 15C No. 21 to 24. 13c No. 25. 15C No. 25C N	
0%	2½, 3, 3½ and nch	
10	116 by 1 in :h, for Plow Handles 3.8c 116 by 34 3.8c 136 by 34 4 3.8c	
0 % 0 % 10%	136 by 34	-
908	Splice Joints for 12, 16 and 20-lb. Rail, 40c each; 28 and 30 lb. Rail, 50. each; 30 lb., 50c each. 3\(\) by 3\(\) and 3\(\) Spikes for 20 and 28-lb. Rail.	
- 00	216 and 3 by 36 " 12 and 16-lb. " 1540 226 by 5 16 " 8-lb. Rail 540 Flat Rails.—Punched and Countersunk.	A
&5 WS WS WS	1½ by ¾ and 7-16 inch. 3-20 1½ by ¾, 7-16 and ½ inch. 3-50	1
60	Juniata Nail Rods. 6.50 Norway "Guard Iron Toyskyk and Toyskyk" 8.00	

T	HE IRON AGE
4	Nails.
8	See Pittsburgh Trade Report. Best Quality Refined Cast Steel.
×	Best Quality Refined Cast Steel. Square, Flat, Octagon and Round. % to 2 inches, inclusive
NAN	1-16 and 21/4 to 3 inches
N N N	7-32 and 436 to 5 "
10 10	220 5 Inch 370 Oil Well Steel Forgings 200
00	Machinery Steel
75	Ordinary Sizes, % to 2 inch
50 W W.	Ordinary Sizes, 9, to 2 inon Round 7 66 50 -16 and 3% to 3 inches 8160 60 -16 and 4% to 6 956 70 -23 inch 1056 80 -16 1256 ro
0%	4 and 314 to 6 " 916c 70 7-32 inch 10160 80
et	5-16 Square, Flat and Octagon, 1/20 extra throughout the
76	Cut to specified lengths, 1/2 extra.
10 00	Hammer Cast Steel
**	Crucible Cast Steel
20 20 20 20	Best. 2d Qual. 3d Qual. Open Hearth
	To 21 gauge, 12½e 11c 9c 7c 1c. extra for each additional gauge, Cut to multiples or specified lengths, ½c. extra
20	Miscellaneous Cast Steel.
N. of 10.	Axle Steel for carriages and wagons
A SA	Side Bars
00	and Mattock, beveled (rolled) 8%6
00,00	Table Cutlery, heveled
.00	Missoillaneous Cast Steet. Auger and Auger Bit. Axie Steel for carriages and wagons Steet Frog Points and Plates Steet Bus Stee
	Roller Spingle, subject to Machinery classification 8460 Tran Spring Steel 8460
	Piston Rods, plain
nt	Spindle, subject to Machinery classification before the proper steel fran Spring Steel Francisco Francis
of	
ts	thick
3-	thick
	Botter, Fire-Box and Flue Sheets, not less than 3-16 thick Courter, Fire-Box and Flue Sheets, not less than 16 thick Clievilars and semi-circulars, when ordered separately arely Shocks Stack to shape 8c Locomotive Tank Steel. 8c
.50 .60	Locomotive Tank Steel. File Cast Steet. Square. Round. Half Round and Flat Bastard. 8- inch and over. MIII Saw, 8-inch and over. Taper, 34-inch and over. Horse and Shoe Rasp. Spring Cast Steet.
.60	inch and over
.70 .90	Taper, 346-inch and over
.70	Spring Cast Steel. 656c Spiral and Taper, cut to lengths. 7c
.90 .10 .30 .50	IXM and over Tire Cast Steel.
.50 .50	IXM and over
	Solid Safe Cast Steel 1560
-3C	Agricultural Implement Cast Steel.
50	Horse Rake Steel, cut to lengths, Crucible
-50	Hoe. Crucible. Side Corn Stalk Cutter, bevoled. 176c Corn Stalk Cutter, bevoled. 176c Gorn Stalk Cutter, bevoled. 18ce lin Pars. 0460 Bevoled Hoe and Shovel Steel in Pars. 8-5c Crucible Piow Steel in slahrs. 8-5c Spring. Bessemer and Open Hearth.
	Crucible Piow Steet in slabs
-7C	" spiral and taper, cut to lengths. side
.00 .80	Tre Calk
re	Axle Billets
.70 .70	Axie Billets Riefat Shoe out to kengths and tapered Cutter Shoe out to kengths and tapered Ske Skeyhe Back Steel Grain Drill Hars Points Points Rolling Coulter Blanks, cut and punched olso Thrashor Steel 46c
1.00 1.00 1.50	Grain Drill Bars
	Thrashor Steel
10	Rolling Coulter Blanks, cut and punched obser Thrashor Steel. Teeth. 44cc Rolled Hammer Billets the Terms.—Four months: a per cent. discount for cash, if remitted within ay days.
-40 -40	Terms.—Four months: a per cent. discount for cash, if remitted within a days. Furnace Floor and Straightening Plates
-50 -70 -80	Housings and Castings not otherwise specified
.00	Spindles and counting boxes
3C 4C	Pipe Mill Castings. 34c
.30	Houstness and Castings not otherwise specified. 2 of quide Plates. Shindles and counting boxes. Sand kolls and Pinlona, large size. Size Pine Mill Castings. Redling Mill Castings under solbs. 1 c Srur and Bevel Wheels, large c c over so inches. 1 december 2 over soliches. 1 december 2 over 3 ove
.5C	Pulleys up to 20 inches small
.70 8c	Engine Castings, light.
.6c	Chilled Rolls,

ann.	nall l	hin is	will
% on	doub	te.	
AA.	A	B.	C.
	\$7.50		\$6.50
9.25	8.50	8.00	7.25
10.75	9.75	8.75	7.75
	10.75	9.00	8.50
	11.50	9-75	9.00
14.40	13.25	10.75	9.50
	14.00	11.25	10.50
	14 50	12.00	
	15,50	13.50	
	17.25	15.00	
20.75	18.75	17-25	
12.75	11.71	10.25	10.00
14.50	13,25	12.50	11.24
			E.L.
17.25	15.75	14.00	8210
	17.25	14.00	8210
17.25	15.75 17.25 18.50	14.00 14.50 15.75	KALO
17.25 19.75 21.00	17.25	14.00	KALO
17.25 19.75 21.00 23.25	15.75 17.25 18.50 21.25	14.00 11.50 15.75 17.25 18.00	ALLO
17.25 19.75 21.00 23.25 24.00	15.75 17.25 18.50 21.25 22.50	14.00 11.50 15.75 17.25 18.00	
17.25 19.75 21.00 23.25 24.00 25.75	15.75 17.25 18.50 21.25 22.50 23.25	14.00 11.50 15.75 17.25 18.00 19.25	
	68.25 9.25 10.75 12.25 13.00 14.50 15.00 17.25 18.25 1	th. A.A. A 88.2c 87.50 9.2z 8.50 10.75 9.1 12.2z 10.75 12.3c 11.50 14.50 14.50 15.0c 14.50 16.0c 14.50 17.25 18.72 17.25 18.72	AA. A B. 88.25 \$7.50 \$8.00 10.75 \$9.75 \$0.00 11.25 \$0.75 \$1.00 11.25 \$0.75 12.25 \$1.75 12.25 \$1.75 13.

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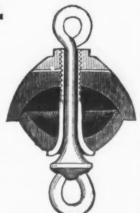
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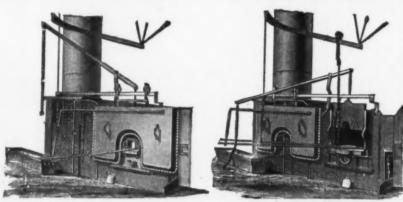
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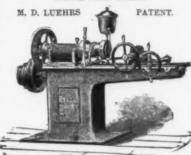
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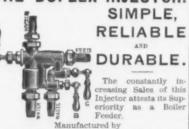
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No. 2, \$\vec{\pi}\$ doz., \$\vec{\pi}\$48.00; No. 3, \$\vec{\pi}\$ doz., \$\vec{\pi}\$0.00 list.dis 20\vec{\pi}\$ Bonney's Extension Hollow Augers\$\vec{\pi}\$0.00 \$\vec{\pi}\$6.00 Pierce's Bitts	
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Scyttes. — Clippers, in ooxes.
Shaves. — Kimball's.
Watrous.
Shaves. — American Shear Co, new list.
Shot. — Tatham's.
Shovels. — O. Ames, new list.
O. Ames, other brands, new list.
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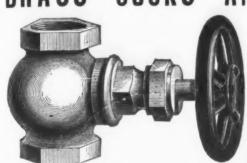
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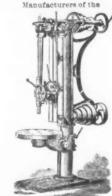
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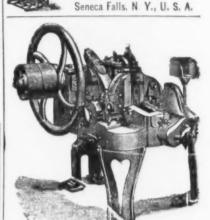
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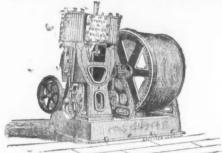


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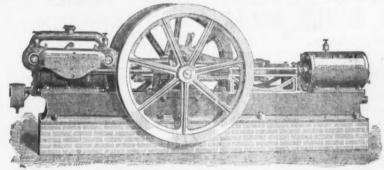
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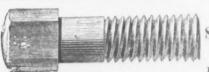
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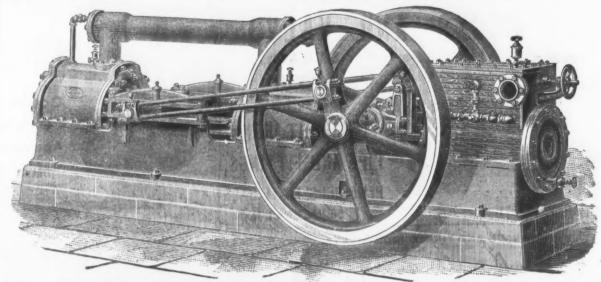
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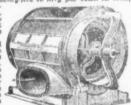
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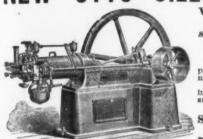
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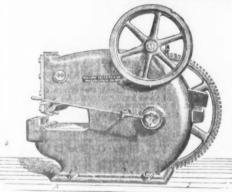


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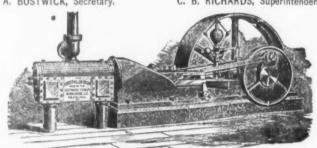
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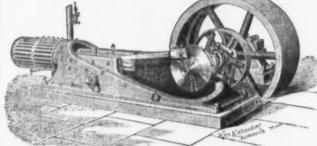
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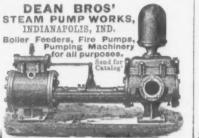
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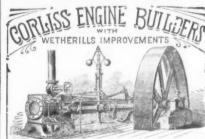




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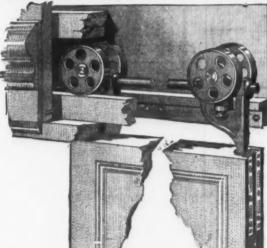
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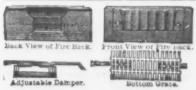


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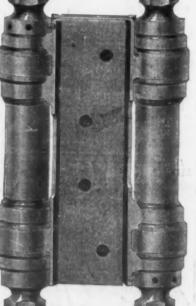
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